

New
Machines
from
Commodore

COMMODORE USER

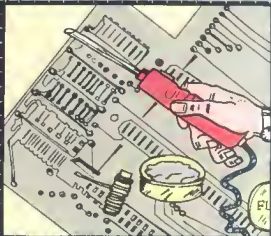
Incorporating Vic Computing

Volume 1 Issue 8

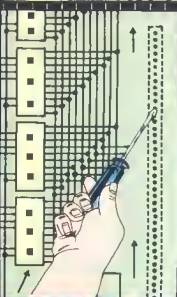
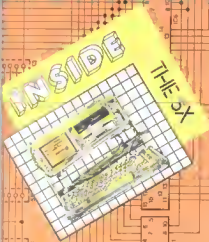
May 1984

UK price 85p

DIY



VIC MEMORY



DISK GAMES
WORD CRAFT TIPS
BUTTERFIELD BOMBER

COMMODORE
SPEARVIEW
PREVIEW

Reviews: Multiplan, VicGraf, VicForth

ZODIAC

COMMODORE

64

An arcade adventure of awesome proportions. The evil powers of hell have scattered the signs of ZODIAC in the 400 chambers of THE ABYSS. You have to find and recover these magical creations and fight all the way by annihilating all those who stand in your way.

J.S

£7.95



TRADE ENQUIRIES: ANIROG SOFTW. THE COMPANY, ARTFORD KENT (0322) 92613/4
MAIL ORDER: 8 HIGH STREET, HORLEY, SURREY. 24 HOUR CREDIT CARD SALES: HORLEY (02934) 4003
PAYMENT BY CHEQUE, P.O. ACCESS, VISA. 50p POSTAGE & PACKAGING.

11

A Basic weekend

Learning to program in Basic doesn't have to be a painful experience for the beginner. You could devote a whole weekend to the task, with a group of like-minded people in a comfortable hotel. Gainsborough House Hotel offers such an easy introduction to programming on the 64. Bohdan Buciak packed his Adidas duffel bag for a digital weekend in Kidderminster.

DIY Extendiboard for the Vic

Why spend money on an expensive memory expansion board for the Vic when you could build your own 32k add-on? Soldering iron in hand, Mark Brighton shows you how - and it's not difficult.

25

Vic-Grav

Instant graphics from the Vic? Colleen Young uses (and likes) Handic's cartridge - especially good for schools, it seems.

A page for Forth

The Forth page continues. It may be better than Basic (or so Richard Hunt argues) but to use it you need a quick & easy Basic replacement. Richard looks at one option, Handic's Vic-Forth cartridge.

32

Visuals

This month's offerings include a program that lets you index up to nine programs on a cassette and one that lets you shrink them (programs not cassettes). There's a word game too.

Screen scene for Vic

Despite its relative longevity, games are still coming in for the Vic. But is experience making them any better? We review the latest batch.

48

Take-away 64 - the SX-64 reviewed

What do you get when you buy together a Commodore 64, a 1941 disk drive and a tiny colour screen - apart from a bill that would pay for two ordinary 64 systems? Sounds like a joke. Maybe, because despite its chunky looks and somewhat portability the SX-64 doesn't seem to know what purpose it will serve. At £995, it left us wondering too.

Multiphan - the ultimate 64 spreadsheet?

Microsoft's implementation of Multiphan for the 64 looks like putting the machine well and truly on the business computing map - and it's probably the leading spreadsheet package from the world's largest and most influential software house. Karl Dallas looks at its advanced features and finds out how well it has been converted for the humble 64.

60

64 Screen scene - disk game specol

More disk drives are now being sold for the 64 so it's not surprising that disk-based games are more readily available - at extra cost, of course. They should be much better than tape-based games but do the disks available now, live up to those expectations?

Butterfield on 64 video - part 5

This time, Jim shows you how to write a short program - Lunar Lander - that demonstrates the features of the 64's video chip. So get sapping.

63

Show preview

At the last coast Commodore was planning to launch six or seven new machines at its Ramnezzmuth Show in June - and the independent software and hardware houses have a good deal up their competitive sleeves. Here's a first bite of the preview chutney.

Tommy's Tips

Our resident tech buffin gets to grips with another sackful of queries which include obscure PEEKs and POKEs on the 64 and using a disk drive with the Vic.

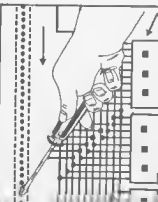
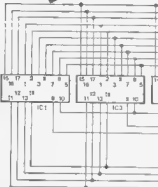
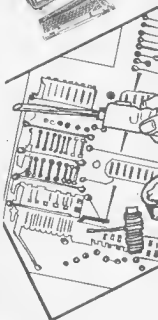
Publisher Annabel Hunt
Managing Editor Dennis Jazrett
Editor Karl Dallas
Features Bohdan Buciak
Special Correspondents Jim Butterfield
Chris Durham
Jim Grubbe
Tony Harrison
Chris Preston
Mike Todd

Editorial Assistant Nicky Chapman
Circulation Manager Hywel David
Subscriptions Manager Janet Crawford
Production Manager Paul Hulme
Art Maggie Underwood
Production Editor Mike Patenden
Advertising Roland Richardson
Desk for Readers Nicky Nod and Vicki Staples

Editorial 01-241 3448
Advertising 01-241 2417
Production 01-241 2493
Administration 01-241 2354

Subscriptions Back Issues
(See last page) 0732-351216

Publisher's guarantee: There are no mistakes in this magazine except this one.



Hanover 1984 -

The annual Hanover Fair is a spring megashow that brings together all kinds of technical exhibitors from makers of earth-movers to LSI chips. It includes CeBIT, an enormous computer hardware, software and peripherals exhibition that spans three of the 16 or so vast hangar-like halls which accommodate the show. Karl Dallas flew in for a look at Commodore's certain-raiser of some of their current new ideas, and flew straight back to catch our press time with a definite impression that Commodore was trying the scattergun approach. Or to use a different metaphor, was it a case of running half a dozen flags up the pole to see which one got the most salutes - an exercise in primitive market research, in fact?

It is unlikely that the new 16-bit Commodore PC, a licensed copy of Bytec's IBM look alike, the Hyperion, though with some significant changes, will be launched in Europe until 'early 1985', and it will be held back from the American market until even later. Though he may be generally close-mouthed about the exact scheduling of the new generation of Commodores (see the Commodore Show Preview elsewhere in this issue), Commodore International President Marshall F. Smith did concede that one nugget of information at a Hanover Fair press reception early in April.

Smith forecast a similar schedule for the launch of Commodore's big surprise of the show, the unexpected new Z8000-based machine. Described as 'a multi-user system with 16-bit architecture at an elevated level', it wasn't actually on display. Initially, it's expected that the standard form of the Z8000 (they kept the name) will be a two-terminal format, though it's planned that this will later be extended to eight or more terminals.

He would not be drawn on any prices. His German general distribution manager, Alois Stumpf, did promise that 'This top product will, of course, be offered with the same price/performance ratio people are used to with Commodore' - suggesting it would be very

competitive.

In the show itself, however, the visitors to the Fair were gathering round the ranks of the new C16. This is a 16K Vbc-sme machine, basically a cut-down 64 (we think) it could indeed be the long-awaited replacement for the 3.5K old faithful, though no one was admitting anything.

There were also plenty of 384s around - that's one of the two new machines with 80K user RAM expected to be launched on the UK market at the June Commodore Show. There was no sign of the other one, the 364 (it has built-in software and voice synthesiser); nor of the C116, an A3-sized version of the C16 with Spectrum-style rubber-chicklet keys. Funny enough the C116 was the only new machine which had been given a definite price tag - DM350 (about £90).

The German press release for the 384 spoke of it having integrated software as an option (probably the reportedly ditty Magic Desk) and also said it would not have any split-screen defining capability like the 64. Sounds like a business computer, right? The British spec for the 384 says: 'Its 121 colours, sound and graphics make it an excellent machine. From arcade style 'shoot-em-up' games to classic board games and business simulation, the 384 puts you in command.' Oh well.

Instead of the VIC chip however the 264 has the TED - it stands for Text Display Processing. Which again suggests a concentration upon text and business applications, though more colours will be available.

The 116 and 264 both have Basic 3.5, as will the 364. This is like a standard Basic 2.0 with all the Toolkit and Super Expander commands built in, plus a slightly simpler disk operating system, it's still not up to the standard of Basic 4's DLOAD and DSAVE commands without device numbers.

The unexpected rush of publicity had obviously caught CBM's German PR people somewhat on the hop, because there were some definite fustiness in the press kits given to us. Notably the release about the 116, which said quite decisively 'The cursor will now be controlled by the 'joystick' method - advantage an and with the complicated search for the keys' (sic). But the picture of the 116 we were given had the four new arrow shaped cursor control keys as a simple N-S-E-W configuration (rather like the neat little NEC lap-held computer, and also found on the 264 and 364).

Anyone who wanted to test the IBM-compatibility of the new PC could have done it easily; there were plenty of Hyperions with CBM badges on them for people to try - even if the lachrymose nature of the outfit was betrayed when you looked at the way that the Centronics output sockets had plugged into them hastily-assembled circuit boards to drive associated colour monitors.

According to Commodore's Director of Advanced Research and Development, Shura M.

Shiva (a technological whizz-kid who was actually educated at Southampton) the Commodore PC when it comes on to the market will be rather more than merely a badge-engineered Hyperion. 'The Hyperion was specifically tailored towards the telecommunications market and it was somewhat compatible with the IBM. We have made it more compatible,' he told us.

'All the differences that are fairly significant have been removed. We have replaced the CRT controller with the same 6845 there is in the IBM. We have completely rewritten the BIOS, and there are considerable hardware changes as well.'

Given the strength of the rather over-priced and clumsy-designed IBM machine in the market, and the amount of software specially written for it, it probably made sense for Commodore to do a look-alike. Why had he chosen the Hyperion, though (compared with, say, the Compag, generally acknowledged to be a superior)?

'The Compag is a very fine machine,' he agreed. 'But it is over-designed for the market we are approaching. With the modifications we have suggested, the Hyperion is more appropriate.'

The taciturn Mr Smith did rather put the cat among the PC pigeons when he stonewalled a question that suggested no contract had yet been signed with Bytec, Hyperion's original designers.

'I have no comment to make on the licensing or contract situation,' he said.

The now ousted Commodore boss, Jack Tramiel, once advised



his European marketing salesmen that the thrust of his company's marketing was to be almost exclusively directed at the small home user. Developers like the 16 and the 116 certainly

Pressekonferenz, Hannover 6. April 1984

News

Commodore flies some 1985 kites?

suggest that the company still has a lot up its sleeve in that direction. But the majority of the new machines it was showing, even if some of them were late flyers of the most obvious nature, were actually business machines and quite powerful business machines at that. In addition to the PC, there was the 128K 8296; and we also saw a version of the 5096 with integral disk drives, the 8096-D, which I gather may be seen on the UK market before the end of the year. These will no longer be the specially-designed drives originally intended for the 700; instead they're more or less standard 8296 drives, which will of course be (almost) compatible with the 8096s still around.

(Incidentally, there is now an emulator program which makes the 700 perform as if it's an 8032; so the current special-package deals on 700s are all the more attractive.)

And then, at the top of the tree, comes the 28000 series, which puts the company firmly in what Commodore is calling the micro mainframe market.

The new machines will start with 256K RAM, 32K ROM plus 128K screen RAM, Basic plus optional Pilot, Assembler, C compiler, monochrome screen with 1024 x 1024 resolution, the Unix 7 operating system (adapted under the name COHOG), IEEE/64 interface, Centronics interface with two programmable RS232C interfaces with transmission rates selectable between 15 and 19200 baud, sound generator, keyboard either with 95 ASCII keys or DIN keyboard with numeric keyboard, 10 programmable keys, self-test routines, auxiliary programs to overcome the differences between various Basic dialects, IGMS Winchester hard disk capability, optional 28070 co-processor, and mouse.

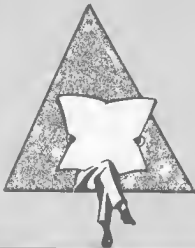
The employment of Unix is particularly interesting. A Bell Laboratories operating system marketed by AT&T, it is particularly biased towards multi-user operation and multi-tasking. It is a little surprising though, that Commodore has opted to employ the obsolescent Unix 7 rather than the allegedly more portable Unix System III and its 1983 upgrade System V.2log which presumably is going to produce the chips for the new 28000 machine following links

between the chip company and Commodore, recently went into partnership with AT&T, Intel, National Semiconductor and Motorola (maker of the 68000 processor used on many Unix machines) to make System V the industry standard Unix.

I asked several executives why Commodore had abandoned their previous close-to-the-chest policy to let public and press into so much of their thinking at such an early stage. Indeed, at so early a stage that the plans are bound to change before stocks hit the shops and risk confusing the consumers. It is likely, for instance, that the 284 will have a different name, and judging by the lack of enthusiasm I found for it among the top German brass, the Spectrum-style 116 may never even see the light of day at all. The eventual Commodore PC is unlikely to look much like the Hypersonic, too.

Nobody could explain it. But Marshall Smith may have provided the clue when he told me: "We sell to the masses not to the classes. But we have a product for the classes, too ..."

When announced at Hannover in April, it was stated that in addition to this portable PC-compatible system a desk-top version with larger screen would be presented in late Autumn 1984. Both it and the portable already shown will be manufactured in Braunschweig, Germany, and built round the Intel 8008 processor.



Going West

The Eighth West Coast Faire was held in March, in sunny San Francisco. An ENORMOUS expense: a highly drilled team of investigative reporters from your favorite Commodore magazine chartered a couple of jumbos to cover it for you (well, one bloke who was going that way anyway - to Bristol - got a standby seat in the loo of a biplane). And this is what he saw ...

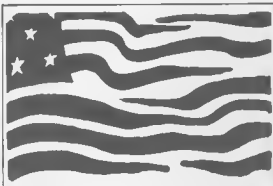
The West Coast Computer Faire started life as a follow-on from the heady post-Flower Power days of garage tinkering right at the start of the micro boom. Other computer exhibitions around the world might be the venues for announcements (new products, company mergers, new ways to use tinol and razormatt in promoting computers). But the West Coast Faire has always been the premier users' Show, the place for grassroots enthusiasts and what's-available-NOW reality. And though the Show's burly and gaudy ex-happy ex-micro-whizz founder Jim Warren has sold it to Big Business in the shape of publisher Prentice Hall, the atmosphere of down-home enthusiasm still permeates - more or less.

The Faire had 50,000 visitors. They saw lots of Apple Macintosh, lots of IBM PCs, quite a lot of business software that probably represents the thin end of the wedge as far as the home computer enthusiasts go (and go they will). But there was still lots of small-computer goodies on view.

Truth to tell, there wasn't much Commodore news about the show - not as much as you'd see at an equivalent event in Europe, anyway. And there was a good deal of emphasis on disk-based VAX: disks seem a lot more common over there (nothing to be seen of the new CBM machines, incidentally, and Commodore itself didn't have a stand). But at least some of the Faire's stars ran on Commodore machines.

Make mine music

Like the one that got our vote as Best Product, it's called MusiCalc. Actually it's several things - MusiCals 1, 2 and 3



plus two rhythm 'templates'. It's all on disk, and it's a family of music synthesiser packages that definitely outshines anything we've yet seen for the SID chip.

"Designed to transform the 64 into a musical instrument that anyone from an inexperienced child to a professional musician can play" says the blurb from manufacturer Waveform. That's optimistic: MusiCalc is a really sophisticated package, and appeals most to the more sophisticated user. You can fool around with it and you can teach yourself synthesising on it but it really scores as the nearest thing we've yet seen to a full-scale several-hundred-quid music synthesiser. Like the screen displays 'slider' controls, modulators, transposers, a sequencer chart.

Great stuff. It's a fabulous piece of programming, packaged very well, with excellent manuals: not cheap (about \$80 per disk) but well worth the money. We immediately trawled San Francisco for copies (they weren't selling any actually at the Faire) and we're having it reviewed. And we were so impressed that we're trying to fix up to sell it in the UK.

Good graphics

Second prize (two subs to CU) went to a joint stand by Inkwell Systems and Micron Technology. The latter does a nicely engineered plug-in and-go 'eye' comprising a camera and lens on a tripod which attaches via a cable and a cartridge to the 64; the cartridge contains (among other things) an image-seising chip. As Byte magazine's reviewer put it, this can "bring capabilities to your computer that were previously available only to large

industrial users".

The MicronEye ("for the cost 'of a good pair of contact lenses') can be used for all kinds of things - burglar alarms, robot vision, input for graphics and software animation, and much more. It was shown working happily with the Inkwell contribution, a very clever graphics package called Flexdraw that offers professional-quality 2D drawing and image manipulation - it comes with a professional-quality light pen, too. Like the MicronEye was 'seeing' something and digitising it on to the 64's display; it was SAVED and then reloaded for amendment and general messing around.

Very clever. The bad news is that neither product is particularly cheap by home computer standards - though \$180 is not all bad for a decent graphics package that includes sprite editor and animation utilities as well as a communications facility, and while \$485 is a bit pricey for a tripod and camera (there's also a 'bulky' version for embedding in other things at \$295) that too compares beautifully with industrial-scale equivalents.

Incidentally, MicronEye has a UK distributor who's loaned us one for review - Mercatek on 0628 928399 has it at £290 plus VAT for the bullet (why is the dollar price lower? search the guy) with the camera available "on special request". The OpicRAM chip itself is available for experimenters, price £33.16

Great games

After a dull patch, some very good games are coming out of America once again - mostly for disk. The likes of Broderbund, Sierra Software and HES had

stands with some good-looking stuff, and a company called Strategic Simulations Inc showed a line of quite extraordinarily imaginative battle simulations.

But quite the classiest games hailed from Electronic Arts. Watch out for that name. And in particular look for Archon. M.U.L.E. and (especially) Pinball Construction Set. Graphics, sound and general programming are brilliant on all of them. The last one lets you design your own video pinball games, which is more interesting (and more instructive) than it sounds. "The best program ever written for an eight-bit machine" said Apple wizard Steve Wozniak (it says here).

SHORTS

Instant disk RUN: Someone told us this in the pub - a program will automatically LOAD and RUN from disk if you enter the LOAD "name", and then type a colon and press Shifted Run/Stop.

Stingalong

Published any good books lately? Turned your work into a movie? Then your major problem once you've bought a larger wallet is what else you can do next with the same material. Of course, the answer is obvious - turn it into a computer game.

That's exactly what Quicksilver has done for The Snowman, that superb Raymond Briggs picture book and consequent animated film which had us all weeping with joy in front of the telly last Christmas (and the one before that).

Now for the Bad News: The Snowman is available only on the Spectrum at present. Quicksilver is obviously playing it safe; Mark Eyles, one of the directors, says "we're waiting to see how well it sells on the Spectrum before doing a Commodore conversion". It probably will sell, although the other Bad News is that a sneak preview showed us it's merely another Magic Miner clone.

But Quicksilver has at least produced a couple of new 64 games. There's Boog A Boo, written by the Spanish software house Indescomp. That game is about a flea. And Sing 64 (you might have guessed) is a game about bees. We'll be reviewing both these insensible offerings soon as the bugs have been fixed (ouch - Ed).

Discover these new games for VIC-20...

These six new games written in 100 per cent machine code, set high standards of playability and really make the most of everything the Vic has to offer. Games of action and strategy, great graphics, glorious colour and full sound effects. Try Submarine Commander, Tower of Evil or Mine Madness and you'll want to try all six.

You should be able to find these games from Creative Sparks at your usual software supplier but you can also order them directly from us, completing the form below.

CREATIVE SPARKS

Please complete the coupon and send it with your remittance to Creative Sparks, Petterson House, Chertsey, Surrey KT16 9AP.

| | | | |
|--|-------|---|-------|
| <input type="checkbox"/> Tank Commander TNC401 | £5.95 | <input type="checkbox"/> Mine Madness TMD430 | £9.95 |
| <input type="checkbox"/> Submarine Commander TNC471 | £5.95 | <input type="checkbox"/> Mutant Herd TMD445 | £9.95 |
| <input type="checkbox"/> Tower of Evil TNC491 | £5.95 | <input type="checkbox"/> Computer War TNC421 | £5.95 |



All action game with strong strategic element. Penetrate the enemy defenses and blow up the ammunition and fuel dumps.

This great game features:

- Superb sound and graphics.
- Smooth action scrolling screen.
- Joystick or keyboard operation.
- One or two player game.

Requires 8K RAM expansion. Cassette £5.95

Attack and destroy all enemy shipping.

That's your brief in this exciting game of strategy. Can you stand the nerve tingling action spread over three screens provided by the amazing game.

Already a big hit in the USA.

Superb scrolling screen in periscope mode.

Nine pre-selectable levels of play.

Keyboard or joystick operation.

Requires 16K RAM expansion.

Cassette £5.95

Action rages throughout.

Move from 70 rooms in the maze-like Tower of Evil, inhabited by such evil creatures as the Baronets and the Warriors of Apyros.

To defend yourself, you throw fireballs from your fingertips on your journey to rescue the princess.

Superb action graphics in this 100% machine code game.

One or two player game.

Joystick or keyboard control.

Requires 8K RAM expansion. Cassette £5.95

Gold mining with a very big difference.

Half-crazed monsters and pits which eerily move up and down of their own accord have to be faced in this unusual game.

Seven levels of play.

High score feature.

Keyboard or joystick operation.

Runs on unexpanded Vic-20.

Instant play-in cartridge action at cassette prices £9.95

Protect the powerhouse from the crazy mutants with the help of your powerful crossed laser beams. Guide the laser into the mutant burrows to destroy the eggs.

This unusual and exciting game benefits from two screens of all action play.

One or two player game.

Runs on unexpanded Vic-20.

Instant play-in cartridge action at cassette prices £9.95

Based on the hit movie "War Games"

Using both strategy and good shooting destroy the incoming missiles and avoid the holocaust.

An amazing game with superb scrolling landscape when tracking missiles.

High tension play when trying to crack the code.

Keyboard or joystick control.

One player game.

Requires 8K RAM expansion. Cassette £5.95

Please make your cheque or postal order payable to: TECS

Name

Address

£

Method of Payment

Cheque

Postal Order

Access/Barclaycard

☐ ACCESS ☐ BARCLAYCARD

☐ CUSDA ☐ VISA

☐ MASTERCARD

☐ AMERICAN EXPRESS

☐ DISCOVER

☐ Diners Club

☐ Other

Card Number

Grappling with print

Pete and Pam Computers is distributing an intelligent printer interface for the Commodore 64 with an equally funny name - it's called the Grappler CD, manufactured by Orange Micro Inc in California.

The price, however, is not so funny - it costs a weighty £109 (including the necessary cables).

According to P and P's blurb, the Grappler has a Commodore 1826 printer emulation mode - which means you can connect a variety of dot-matrix printers, like Epson, Star and NEC, to your 64, and they'll work as though they were Commodore models, to produce all Commodore's graphics and special characters.

Grappler plugs into the 64's expansion port from which it takes its power. It has its own Commodore-type serial port for CBM printers and a Centronics parallel port for connecting the other printers of your choice.

Its standard print features include high-resolution graphics, screen dumps, a 'transparent operation' mode, and block-graphics screen dump. It's claimed to have a wide selection of commands including double-size, inverted, rotated and emphasised graphics.

The device also has text formatting facilities like margin and tab settings, page length and skip-over perforation. We'll soon be grappling with a review copy (Ho-ho - Ed). In the meantime, more information on 0706 212744.



SHORTS

Stopper bugs: In Chris Preston's *Stopper Virtual* (February 1984) a couple of typos unfortunately crept in - but nothing to stop the program running. On page 71, the explanation of the program refers to line 490; this should in fact be line 460. On the program listing, line 190 refers to line 145, this should be 150. Sorry!

SHORTS

Memory saver: Well it doesn't save a lot of memory. But if you have a GOTO statement, you can put a REMark after it on the same line without including the REM statement. The program never looks beyond the GOTO, you see.

BC BASIC

The BC Basic cassette offer in the Deals For Readers section is now at an end (we're sad to say) so please, no more orders.

PS: DFK's will be back bigger, better and with even more bargains next month!

SHORTS

Going up: Home computer ownership has more than doubled in Britain during the past year and the market looks set for further record growth, said a new survey in February. More than one home in ten had a micro in January 1984, 11 per cent of households compared with 4.9 per cent in January last year.

Growing Marketing services says it is difficult to see any long term future for less popular models or for new entrants 'unless they can offer some important advantage'.

COMMODORE 64

OXFORD
PASCAL

YOUR
FUTURE WITH
COMPUTERS
DEPENDS ON PASCAL



Oxford Computer Systems
(Software) Ltd
Henington Road,
Woodstock,
Oxford OX7 1JR, England
Telephone (0993) 812700
Telex 63147 Ref. OCSL

Advantages:

- PASCAL is the world's most popular programming language after BASIC
- PASCAL is FAST... up to 20 times the speed of BASIC

WHAT IS OXFORD PASCAL?

OXFORD PASCAL is a COMPLETE implementation of the popular programming language PASCAL running on the Commodore 64.

GRAPHICS & SOUND

With the OXFORD extensions to PASCAL you can programme dazzling graphics and astounding sound.

OXFORD PASCAL

With the cassette version of OXFORD PASCAL you get:

- A powerful text editor for preparing PASCAL programs
- A resident compiler giving 14k of user RAM
- A powerful set of colour graphics and sound extensions to standard PASCAL

With the disk version of OXFORD PASCAL you get:

- All the above, PLUS
- A full disk to disk compiler exploiting the entire memory of the 64 for PASCAL programs.

OXFORD PASCAL DISK AND CASSETTE

Cassette version (resident compiler only) £14.95
Full disk compiler (1541, 4040, 8050, 8250 drives) £49.95
Prices are exclusive of VAT. There is also a small charge for post and packing.

Take the screen test and be a STAR!

in the *LiveWire* high score competition*

Use your skill and dexterity to win one of our fabulous prizes.

Free entry form in every game purchased

*only on Gridtrap 64 and Jumpin' Jack 64.

- PRIZES**
- 1st Commodore 1541 SINGLE DISK DRIVE
 - 2nd Commodore 1520 PRINTER PLOTTER
 - 3rd Commodore SIMONS BASIC CARTRIDGE
- Seven runners up will receive the latest Pro Ace joystick as prize

WATCH OUT FOR TRIAD 64 COMPETITION COMING SOON

More fabulous prizes to be won

GRIDTRAP 64

We promise you won't be able to turn it off! It's a real skill tester and loads of fun to play!

Play with the Keyboard or Joystick. Choose your own operating keys with our **User Definable System**. Compete with an opponent by selecting **Two Player Mode**. Great graphics, super sound effects in the *LiveWire* tradition including a selectable Melody Mode where the tune is available at the touch of a key and Melody On is indicated by a quaver graphic.

Program No. LW04 £8.95



JUMPIN JACK 64

Not just a game... an Experience!

IT HAS IT ALL... EXCITEMENT... HUMOUR... STRATEGY

Jumpin' Jack leaps into a totally new look for the 64 created by **Three Dimensional Graphics** giving **Full Perspective** to the game. PLUS... loads of features never seen before!

Submerging Turtles - Snakes - Crocodiles - Otters - Lady Frog - Dragonfly!!

It's Fun +++ IT'S PROGRIFIC +++

Program No. LW02 £6.95



TRIAD 64



NEVER BEFORE HAS A COMPUTER GAME LOOKED SO EXCITING...

FELT AND PLAYED SO EXCITING...

Watch astonished as the Triad hurt themselves towards your craft in a remorseless battle against your intrusion.

Feel the heat blast of their anti-matter fields.

Your pulse laser will have to turn up to hot before this encounter is over.

Fascinating

A new **DIMENSION...**

Into the realm of **TOTAL PERSPECTIVE GRAPHICS...**

Program No. LW03 £8.95

LiveWire Software

198 Deansgate, Manchester M3 3NE

Telephone 061-834 4233

TRADE ENQUIRES WELCOME

Clip the coupon and return to Barnack Software Dept. CU
198 Deansgate, Manchester M3 3NE
or Telephone 061-834 4233

Please send me the following Software

Enclose Cheque/P.O. for £

inc P + P.U.K. only

To Name

Address

Post Code



Also available from good computer dealers and bookshops nationwide

ELECTRIFYING
EXCITEMENT!

KILLER WATT

THE OUTSTANDING GAME OF 1984 FOR COMMODORE 64

Alligata presents a superb range of software products that are designed specially for you. Games that cleverly combine full machine code and high resolution, full colour graphics to create hours of fun and excitement. And utilities that have been developed to open new doors and help get the best from your Commodore 64 micro. If it's to be outstanding quality and amazing value for money then Alligata has to be your choice.

Send a stamped addressed envelope for our full colour catalogue which gives details of the complete range.

WRITE OR PHONE YOUR ORDER TODAY!

also available from all
good software stockists.



Explore the eerie darkness of an underground cavern and smash the 12 ferocious light bulbs there to reach the next level. Watch out for the flying humanoid, carnivorous fish and deadly photoractyls! Blast through this magical gateway and you will be transported to the start of the next challenge. Joystick compatible.

ALSO AVAILABLE

C66 SQUASH A PROG £7.95

Cross a motorway of fast moving traffic. Traverse the rapids teeming with frog eating snakes, alligator and sunbathing turtles. Can you get him home? Or is it just light speed? Joystick compatible.

C62 BRANDS £7.95

Test your skill on the Grand Prix track. Accelerating to breathless speeds can you overtake? Can you face the danger of night driving as the roads get narrower?

C61 BALLOON RESCUE £7.95

Fuel level low. Time running out. Collect fresh fuel to stay in the air or plunge to certain agonising death.

C63 DAMSEL IN DISTRESS £7.95

Menacing man-eating spiders and dreadful apparitions. Weakened by poison you must climb the settlements and rescue the princess who holds your antidote.

C66 BAT ATTACK £7.95

Killer bats in the first wave, a myriad of aerialoid discs in the second. The third wave? ... The faster your reflexes, the more deadly the challenge.



Capture the soul of each human intruder as he seeks to set free one of the poor beings you've already banished to the realm of the living dead. Watch out for the ghost eating bats and snakes lurking in the shadows.



A really fast implementation of the asteroid 'asteroids'! Soldiers, mushrooms, vertebrae, snapping scarphans, scoping dragonflies, angry monkeys and Brier, the madman painting star!



Find the lost tomb deep in the Amazon forest. Experience heart-melting scenes you'll ever get there! Every location has a full graphic picture.



The master hunter robs safe after safe, usually avoiding night watchmen and other henchmen. He has to shoot all the bugs in each location and then open the safe before he progresses to the next level. 30 DIFFERENT SCREENS!

Joystick compatible. Joystick compatible. Joystick compatible.

Joystick compatible.

Despatch is normally made on receipt of order and should reach you within 7 days.

INDICATE PROGRAMS REQUIRED

C09 C07 C08 C05 C06 C04 C02 C01 C03 C010

I enclose cheque/PO* for £..... Change my Account/Visa £.....

Card No..... Signature.....

Name.....

Address.....

*payable to Alligata Software Ltd., 178 West Street, Sheffield S1 4ET
allow 75p for post and packaging

COM USER 5/84



Alligata Software Ltd, 178 West Street,
Sheffield S1 4ET, Tel (0742) 755796

Review

Bed, breakfast and Basic

a Worcestershire weekend for Basic beginners

by Bohdan Buciak

If computers worry you and you don't know what all the fuss is about, a weekend computing course might be just the thing to allay fears of missing the hi-tech bandwagon.

Gainsborough House Hotel near Kidderminster runs just such a course, exclusively on the Commodore 64 - two nights in three-star comfort, a minimum of 18 hours tuition, all for £65. Bohdan Buciak packed his suitcase - and returned a changed man.



"Are you on the computing course? There's a sherry in the Bar, dinner will be served at 5.30." Staff at the Gainsborough House Hotel have got used to the uneasy and confused faces that appear at Reception on a certain Friday evening every two months.

Most of the assembled have come to this secluded outpost of Kidderminster straight from work, from as far as London and the South Coast. Nobody professes any real knowledge of computers: only one person already has a 64, and two people have used a word processor. There won't be much experience to draw on. But there's a real mixture of real people: dentist, architect, insurance broker, an assortment of people who confide, "actually, I

run a small business". Plus one journalist.

Unusually for the computer world, most of the people are women. Women outnumber men by 12 to 8. Isn't that a little unusual? A concerted, slightly feminist reply "didn't you see the article in *Company* magazine?" Company it transpires, had written a good report on the course and had proudly asserted in its article, "The first programmer in history was a woman", thus inspiring these coiffured, demure ladies to take the programming plunge - in the wake of the brilliant Ada Lovelace (friend of Charles Babbage, he of the intellectually advanced and practically impossible Engines).

Dinner is leisurely and chatty but nobody seems particularly

hungry. We talk rather shyly of our plans. Most of the ladies "with small businesses" know that computers could be useful to them but don't know anything about them. They're here to undergo demystification. We all nod sagely and pass on to the trifle.

First Impressions

After coffee we wander upstairs to a room full of hi-tech hardware. We meet Harry Siddall, the course tutor, short, stocky, bustling. He's rushing around with an assortment of plugs and wires, making the mayhem of tangled cable even worse.

All the much-travelled Commodore 64s eventually work, there's

thirteen of them, plugged into amber (not colour) monitors. "Some people will have to share", apologues Harry. But nobody minds that, they couldn't really be expected to take on a 64 singlehanded. One person had brought his own 64 and he shared that too. "I bought the thing a while ago because my son's learning about computers at school. Couldn't get past page ten of the manual", he sighs.

It's 8.00pm on a Friday evening, but the course starts here. Harry begins in jovial mood, a tone he keeps up to the very end of the course. He's a bore teacher, patient and thorough - taught electrical engineering for 20 years - then was made redundant. He set up a computer training company that folded. Now he

bubble bus magical utility programs for the Commodore 64



WORD WIZARD

Real value for money word processor simple to use. Includes many features: Insert and delete lines Copy block Move block Tabs, etc. Save to tape or disk. Requires printer.

ADVERTISER

This magical program turns the 64 into a moving, musical message display. You may enter any message up to 950 characters and adjust the speed with the touch of a key.



CLUB NEWS

**WELCOME
TO OUR CLUB**

PRINT SPECIAL
LARGE
CHARACTERS

POSTER PRINTER

Now you can print with special large characters - any number between 1 and 999 copies. Ideal for sales offers, club news, notices, etc. Requires dot matrix printer.



LABEL PRINTER

Store all those important addresses or any other information, and recall them selectively to print. Label size can be from 1 to 18 lines, so you could use it for storing any other records, e.g. sales, recipes, etc. Stores on tape or disk. Requires printer.

QUIZZER

This flexible program allows you to create any quiz of your choice and save it on tape. The quiz can be protected by password and can be reversible, e.g. the same quiz could ask for translations from French to English or English to French. Multiple answers permissible.



If you have any trouble buying our products, you may order direct from:

bubble bus software

87 High Street, Tonbridge
Kent TN9 1RX
Telephone: 0732 355962



don't miss our magical games for the 64!!!

bubble bus products are available from:

LIGHTNING and SPECTRUM DEALERS LASKY'S GREENS
SELECTED HMV SHOPS JOHN MENZIES GAMES WORKSHOPS
CENTROSOFT W H SMITHS and PC8 STOCKISTS



teaches for himself, inspiring people with his own fascination with computers.

That fascination leaves him with little time to waste, he knows these empty vessels must be filled by Sunday. So we're summarily propelled into basic BASIC commands (Harry apologizes for that one).

"Typing NEW is like throwing your existing business records into the bin. We get the point. Then we're whisked along to PRINT statements. "You can print anything on to the screen, even rude words," quips Harry. But nobody could think of any - such nice people. That's followed by elucidation on REM statements. "If you write something rude into the program..." Harry's getting carried away.

When we've assimilated LIST and digested LET, we start writing a program to calculate Harry's tax. That's pretty good going after two hours. And it all works very well. We modify it a little and add variables - we know the difference between strings and the numeric type. That works too. Harry fits around, advising and explaining here, modifying there, perhaps consoling those who are struggling - totally oblivious to time.

But it's getting on for midnight and a few of us are fading rapidly. Harry is made aware of this. "You can take a 64 up to your room and plug it into the telly if you like." Nobody appreciated that joke but he's got more up his sleeve. "Back here in the morning for some more torture." The stalwarts trudge down to the bar for a nightcap. "He's lost me by 11 o'clock," says one of the combatants. The rest of us glow with tired satisfaction. We've made the computer do something, and something practical at that.

Early start

Saturday morning alarm call at 8.30am: that is no place for Big Sleepers. Breakfast is leisurely but by the time we get upstairs to the micros, a few people are already diligently programming (did they stay all night?). People mumble something about "getting part of Saturday" - on to ourselves.

Jovial and inexpressible Harry begins with a recap and decides we need to know some theory - the difference between tape and disk bits and bytes, ROM and RAM, the central processor. This is all stuff most of us have heard before but could never really



understand. Harry scribbles and draws on the board. He's lucid and invariably repeats ideas twice. That might get on your nerves if you already knew a little.

"The processor is like a tower-block with 64 floors..." We struggle to grasp the ideas. One teenager (he's come with his parents) is catching on quick but he's already got a BBC micro. And he wants to know more "what's the difference between 8-bit and 16-bit?"

Harry sees the danger signs and slips down a staircase. He's loathe to complicate issues. "You need the theory so that the dealer uses when you buy a micro mean something." He explains about greater power and speed, and leaves it at that - time for lunch anyway.

The help-yourself salad over, a few gulps of coffee and we return. Harry's been sprinkling the word 'business' around a little during the course. Now he takes the plunge and devotes a little time to that issue. He gives a brief discussion of VisiCalc. A

battered copy of the manual is passed around. "Oh dear, it's got such a lot of pages".

Then he goes through the general implications of buying business software. This is useful for the small-business people. One lady's been thinking about spreadsheets. Another has contemplated installing a database for her staff agency. They've all been scared to talk to dealers they don't understand the words and they've never even used a computer before. But Harry is trying to put all that to rights. He's got to specific advice to offer but at least he's strapping away a little of that ignorance and inspiring a modicum of confidence in its place.

The rest of us are eager to carry on programming. Harry wraps up this section and introduces that wonderful device, the FOR - NEXT loop. We see what happens when you put your INPUTs inside and outside the loop. Then we design a letterhead on the screen using a few of the 64's graphic characters. And find out how to turn our work into a

program so we can print it.

Time is slipping by and it looks as though most of us are here despite the supposedly free afternoon - we're all pretty engrossed, doing our thing, even flicking through the manual to see how we can extend that program we wrote yesterday. Harry gives help where needed, leaving most of us to experiment by ourselves. The more adventures get more frustrated because they don't know enough to make the program do more. They're trying to run before they can walk - but that's a good sign.

Saturday night fever

Saturday afternoon saw our pinnacle of achievement: we'd programmed like never before. So after dinner (yes, even while The Late, Late Breakfast Show was on), we're back with a vengeance.

But there's a general feeling that this is going to be another mammoth session. Harry hasn't let our efforts go to waste. We've saved our work on tape and even verified it after loading. So now we load our letterhead and extend it into a basic invoice program that adds up a number of items. Harry scribbles new lines on the board, explaining as he goes, his hands getting blacker and blacker with the felt-tip pen he's using.

Nobody suggests that what we've written could be used in real business. But it did work and gave us an idea of how true business software works - stripping away another piece of that mysterious shroud.

We were right about not getting away before midnight (again). Harry's hands are blacker than ever and he's still scribbling undeniably on the board. Attention wavers as some contemplate going straight to bed, others dream of getting down to the bar. Some make it, and manage to lift a few glasses before turning in.

Rainy days and Sunday

Probably none of us had asked for a Sunday morning alarm call. We still got one and came down to a blustering wet morning. Late yesterday, a few keen souls were already tapping keys whilst the rest were breakfasting. By now there's a feeling creeping in that we're teaching the end, formal

teaching till lunch and then games or a look at the database and word processing package Harry's supplied on the other side of our tapes. We plan to settle our bills and depart some time after lunch.

But we've still got PEEKs and POKEs waiting for us before all that. "Harry, can you PEEK before you POKE?", asks one of the demure ladies. Harry smiles. He's heard them all before and his own jokes haven't been much better. We then go on to random numbers and how you can specify an integer and the range of choices for the random number generator.

Harry shows us how to write a program that acts as a teaching aid, another one of his ways of getting us to do practical things with the 64. He scribbles on the board (hands getting blacker!) explaining the lines as he goes.

The finished product is an interactive multiplication tables program. We're very proud of it. Some of us take printouts of the programs we've written, perhaps

as souvenir or as evidence that we really did write them. "How can I get it to give the answer if you don't get it right after the third attempt?", asks someone. No need to tell the rest of us, Harry - we already know about IF's and THEN's.

That just about wraps up the course. Taxes have been ordered, bags are being put into cars. Everybody agrees that if Harry did a follow-up, we'd all try to be there. One last thing before we go. Harry presents us all with a signed certificate. It's all just for fun, but a nice touch nonetheless. One lady hasn't got one. "Betty gave me one, or my husband will wonder what I've been doing all weekend."

Overview

Gainsborough House Hotel is keen on the courses Harry Siddall runs. They occur about once every two months, designed for the absolute beginner. The course

itself represents tremendous value at £65. But don't go if you already know a little about programming or you already use a computer in business.

Apart from the basic programming side which is elementary yet useful, there's an emphasis towards business use. Harry Siddall tries to explain both the jargon and the different species of software available. Again, it's elementary stuff - completely for the uninitiated.

We had a lot of fun in pleasant and friendly surroundings. The course taught us a great deal, a pleasant, interesting, painless start to basic programming. For many participants, some of it will, no doubt, fade in time, but for those who were completely ignorant of computers (there's still a lot of them around!) at the very least the course must have been a comfort. They'd taken the plunge and so longer felt left out in the cold.

| Under review | Weekend Basic programming course |
|--------------|--|
| Address: | Gainsborough House Hotel Bewdley Hill Kidderminster Worce |
| Summary: | Telephone: 0562 754041 Elementary introduction to Basic programming Basic discussion of computers in business Pleasant surroundings, good value for money |
| Price | £65 all inclusive |

GOT A WINNER?

Prove to us how good your game is and we will market it for you. In return we pay generous royalties or purchase outright! Send us your game in Basic or machine code for evaluation then sit back and earn big money.

Send To: Debbie Newland
Fleece Software Limited
27 Brigstock Road
Thornton Heath
Surrey CR4 7JJ
Tel: 01-683 0311

(In the unlikely event of your not accepting our offer, we will return your cassette).

**Now with Audio
Learning Cassette**

Superbase 64

The natural development for Commodore 64 users

Unlock the full potential of your disk-based Commodore 64, use Superbase 64 – the complete records-handling system that puts business-style power and practicality at your fingertips.

Superbase 64 solves a host of filing problems with its easy record formatting, powerful indexing and sorting, extensive outputting options, and its 'Superbasic' programming capability

Invoices/Finance & Banking/Membership/Collections/Recipes/Personal Filing/Stock/Prospects/Management Accounts/Car Fleet Records and many, many more!

And Superbase 64 comes with a simple-to-follow manual and audio-learning cassette so you'll have no trouble getting the benefits straight away.

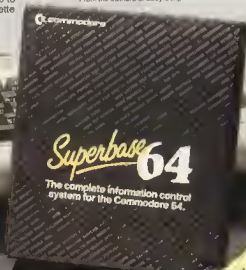
Superbase 64 – The complete Information control system for the Commodore 64

Complete your Commodore 64 – Complete the coupon



Precision Software Ltd.
6 Park Terrace, Worcester Park,
Surrey, KT4 7JZ
Precision Software Telephone: 01-330 7166
Telex: 8955021 PRECIS G

More information on Superbase 64 is available from Commodore Dealers, Major Retailers or from Precision Software direct
From the authors of Easy Script.



Precision Software Limited, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ Telephone 01 330 7166

Please send me more information on Superbase 64

Name _____ Address _____

Occupation _____ Age _____

I am interested in using Superbase 64 for:

Invoicing ☐ Stock ☐ Home Records ☐

Business Records ☐ Accounts ☐

Others _____



The Vic-20 Extendiboard

Build your own extension board – with 3K on it already!
by Mark Brighton

We've often had requests for simple DIY electronics projects to do useful things with the Vic, and most of them centered on ways of beating the prices suppliers charge for extra memory and cartridge-slot expansion boards. Well, we were just about to commission such an article – when we spotted Mark Brighton's Extendiboard project in the December 1983 issue of *Electronics*, the magazine published by Maplin Electronic Supplies.

This allows the Vic to be fully expanded. It gives you three expansion sockets, one switchable. It has the option for a 3K on-board RAM chip; and Lord knows it's cheaper than any 3K RAM cartridge we've seen, let alone a 3K-plus-extra-sockets add-on. A parts list is included, and if you buy them from Maplin, you'll pay £26.95 for the lot.

So, with due acknowledgement to *Electronics*, here's a money saver for all you Vic owners with soldering iron.

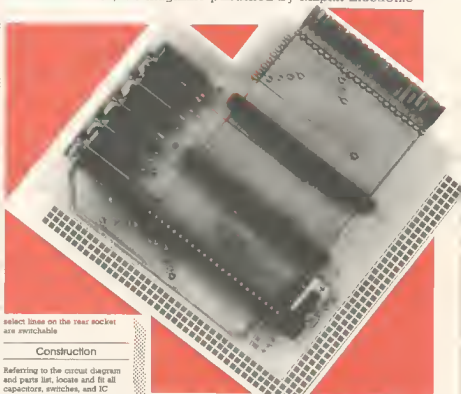
One problem frequently experienced by the author when programming the Vic-20, especially when using hi-res graphics, is lack of memory (within the computer, usually).

This may, of course, be easily overcome by plugging a RAM pack into the expansion socket. But that creates a new problem. No longer is it possible to use a Super Expander/Machine Code Monitor/Forth cartridge etc because the socket is occupied.

Therefore the subject of this article is an extension board which plugs into the memory expansion connector on the Vic and provides three sockets into which any combination of RAM/ROM cartridges may be plugged (within reason, of course – two games cartridges at once would give your Vic a severe headache).

In addition to these expansion sockets it was considered worthwhile to include a built-in 3K RAM extension on the board, thus freeing a socket from carrying a 3K RAM cartridge. This is optional, however; it may be omitted by leaving out ICs 1 to 16 and capacitors 1 to 5 inclusive.

For those who wish to experiment with switching blocks of memory in or out, during initialisation for example, the block



select lines on the rear socket are switchable

Construction

Referring to the circuit diagram and parts list, locate and fit all capacitors, switches, and IC sockets, then solder them to the board.

Observing normal precautions for CMOS devices, plug ICs 1 to 6 into their sockets.

Clean the board and inspect for short circuits, dry joints, etc.

Testing

Plug the extension board into the memory expansion connector on

the rear of the Vic, and switch the computer on. If all is well, the Vic should initialise and display the message '6555 BYTES FREE' (if ICs 1 to 6 are included).

Now try entering and running a small Basic program from the keyboard to check the operation of the 3K RAM extension.

Lastly, try a game cartridge, or similar, in each of the three sockets of the board in turn.

Remember to switch the computer off before attempting to remove or replace a cartridge or the extendiboard.

Usage

As there are many possible uses for an extension board such as this, they could not all be covered in this article. I shall

Project 7

however attempt to outline a few

- One 16K RAM cartridge and one 8K RAM cartridge, for those who write very long programs or wish to handle large amounts of data. This is the maximum memory extension available to Basic on the Vic-90

- The machine code monitor cartridge is not normally usable in the fully expanded Vic, as its address area lies within the top 8K RAM area. It could, however, be used in place of the 8K RAM cartridge, which still leaves a very considerable area for machine code program storage

- Maplin's Talkback speech output device or similar add-on, plus extra RAM if required, can now be used together. Programs can be written using hi-res graphics, complex sound effects, and speech synthesis in Basic or machine code. Your programming abilities and imagination can come into full play - the possibilities are limitless

It should be remembered that if 8K or 16K RAM cartridges are used, the on-board 3K expansion or a plugged-in 3K RAM cartridge are not available for Basic program storage - this is because of the way the operating system arranges screen memory during installation.

This area (decimal 1024 to 4095) is still useful for data storage using PEEK and POKE from Basic, or it can hold machine code to be executed using SYS or USR.

A complete kit of all the parts required for this project is available from Maplin Electronic Supplies Ltd., P.O. Box 2, Rayleigh, Essex S227Y, price £29.95

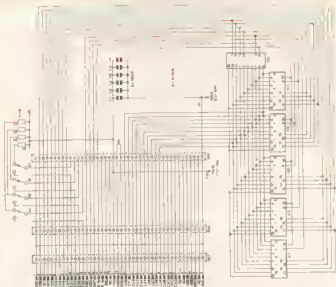


Fig 1. Circuit Diagram

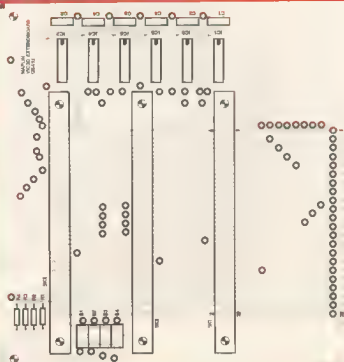


Fig 2. PCB Layout

VIZASTAR 64

THE INFORMATION PROCESSOR

■ Spreadsheet

■ Database

■ Graphics

- One word menu lines for easy selection of facilities
- The high resolution grid pattern frames the worksheet giving an easy-to-read display

See us at the Commodore Show June 2nd - 9th

- Extract from your information files and include them into the worksheet for fast, powerful calculations and easy reporting
- Instant on screen design of your information records

- A 1000 Row by 64 Column wide worksheet with large memory capacity and efficient usage
- Extensive use of 'Windows' allows you to view one part of the worksheet while working on another

- Add or remove items from your records without having to reconstruct your existing information records
- Records up to 1,000 characters long with each item up to 250 characters

- Advanced spreadsheet features include individually variable column widths, protected cells, a programming facility plus a wide range of maths functions

- Supports virtually any printer - CBM, EPSON, JUKI, BROTHER, OLIVETTI and many others
- Parallel printers require ONLY a low cost cable

- Include information directly into the Worksheet from VisaWrite and almost any other system
- Simultaneous display of worksheet and line or bar graphs

- Worksheet manipulation lets you Search, Sort, Copy, Move, Delete and Insert by row, column or range
- Text editing facilities for letters, invoices, report headings etc

VizaStar integrates three important electronic aids to your business or home office.

A fast and easy-to-use package - VizaStar is a comprehensive information processor that includes an electronic worksheet, information filing system and simultaneous on-screen graphics.

VizaStar has been designed to incorporate the very latest in user-friendliness - so now you can handle your all-important information in many new ways and in a quick and effective manner.

The information filing capabilities of VizaStar enable you to store your information onto disk in

an ordered and instantly retrievable form. This means that you can quickly pick out individual or entire groups of related information to create lists, statements, labels or reports.

VizaStar is the ONLY program of its kind on the Commodore 64. Completely consistent with the VisaWrite word processor, VizaStar provides a totally comprehensive office system.

VizaStar costs just £99.95 (incl. VAT) from your computer dealer and selected stores. Please write for more details and the name and address of your nearest dealer.



**VIZA SOFTWARE, 9 MANSION ROW,
BROMPTON, GILLINGHAM, KENT ME7 5SE**
TEL: MEDWAY (0634) 813780
Dealer enquiries welcome.

AVAILABLE NOW - VIZASTAR 64
£99.95
(inc VAT)

SOFTWARE

RISE TO THE CHALLENGE
with your
CBM 64

LEARN TO TYPE WITH

[illegible]

TRADE SHOWS ARE WELCOME
Look out for our growing
range of software including
titles for the Onic 1,
Onic 2 and Spectrum
S.A. for full list.

[illegible]

Copyright © 1999 by John Wiley & Sons, Inc.

Available from selected retailers
or direct from:
Seren 15 High
Lydney

Screen Software
15 High Street
Lydney
Gloucestershire

Encounter



by Chris Preston

21

Prizeless, pointless contest: the Commodore Quiz

by Roger Peacock

- IF YOU SENT YOUR VIC-20 TO SLOUGH FOR CONVERSION TO A C64-64, WHAT WOULD YOU GET BACK?
 - Nothing
 - A copy of 'How to be a Welly'
 - A special POKE location
- THE 1540 DISK MANUAL IS WRITTEN IN WHICH LANGUAGE?
 - Swahili
 - Urdu-Cobol
 - Machine Code Dyslexia
- THE NUMBER 1034 REPRESENTS WHAT?
 - The number of monthly computer magazines published
 - The number of mistakes in Vic Revealed
 - Tommy's IQ
- THE LETTERS 'P.E.T.' STAND FOR WHAT?
 - Piles of Electronic Tackles
 - Pre-runner of E.T.
 - Put on Every Table
- THE USE OF AN ELEPHANT IN 64 ADS IS DESIGNED TO TELL YOU WHAT?
 - The 64 is very heavy
 - The elephant wrote the handbook
 - Commodore Users have long memories and thick skins
- HOW DO YOU RECOVER FROM A VIC DISK ERROR?
 - At a private health clinic
 - With a 12lb sledge hammer
 - By using the cassette recorder
- THE NUMBER '10' REPRESENTS WHAT?
 - The age of David Simons
 - The number of people in the world who can program random files on the Vic disk system
 - The production cost in dollars of the 64
- HOW DO YOU CHANGE THE VIC-20 SCREEN LOCATION?
 - Move the sideboard
 - Punch the kitchen table
 - Take your RAMpacks out
- IF YOU SPEND 3 HOURS TYPING IN A 8000-LINE PROGRAM AND TYPE 'RUN', WHAT WOULD YOU NORMALLY SEE FIRST?
 - SYNTAX ERROR IN LINE 1
 - CBM BASIC 3863 BYTES FREE READY
 - Your psychiatrist
- WHAT IS THE MAIN FEATURE OF THE VIC MEMORY MAP?
 - You can't remember it
 - Slough is just off the M4
 - 42
- WHAT IS THE METROPOLITAN?
 - Clive Sinclair's Barber
 - The pub where Commodore Users is written
 - Jim Butterfield's brand of razor blades
- IF YOU HAD AN 'OUT OF MEMORY' ERROR DUE TO GARBAGE COLLECTION, YOU WOULD HAVE
 - Forgotten to put the dustbin out
 - Upset your dad when with three tons of old computer magazines
 - Bought a cassette game

That's enough questions Ed.)

Data to your Commodore and music to your ears

THE ROTRONICS DR2301 AUDIO/DATA CASSETTE RECORDER

- Why should you need two cassette recorders just because you are a Commodore user?
- The ROTRONICS DR2301 has all the facilities you would expect of a quality audio recorder and also works perfectly with the VIC 20 and C64 computers without any fiddly separate boxes or adaptors. Simply connect the DR2301 directly with your Commodore computer via the lead supplied and you are ready to start. The built-in interface circuitry ensures that SAVING and LOADING is completely reliable - even when using commercially produced software. The DR2301 also allows the computer to sense when the PLAY key has been depressed.
- Additional features are auto-stop, tape counter, input microphone and foot pedal carrying handle. The DR2301 is also compatible with the ZX81 Spectrum

and many other popular home computers

- The DR2301 will take its power from the computer (Commodore only), mains adaptor (supplied) or internal batteries. Each unit carries a full 12 month guarantee.
- All this at a price which is a lot less than you would pay for a dedicated data recorder - just £34.95 (p & p £2.00). Send your order form to (no stamp required)

SMT SMT FREEPOST Greens Norton
Towcester, Northants NN12 9BR

£34.95
(p+p £2.00)

ORDER FORM
Please send _____ Rotronics
audio/data recorder(s) at £34.95 (inc.
p & p) each. All prices inclusive of VAT.
Please make cheques payable to SMT.
Allow 28 days for delivery.

Name _____
Address _____

C64/64

VIC 20 and C64 are registered trademarks of Commodore Business Machines

SPECIAL OFFER!

Sulis Software invites you to a private showing of all their learning programs—for just £1

It has been calculated that 60% of people who buy home computers want to use them for educational purposes—but that only about 10% ever do so.

It isn't surprising Games are easy come, easy go—and are on sale everywhere. If you buy a dud—well, better luck next time.

Educational programs are different. You're looking for quality and lasting appeal—which is what Sulis Software programs are all about.

Then there's the problem of level. Age is no guide to ability or knowledge, and a program which is too easy or too difficult isn't much use. Shop assistants aren't always knowledgeable, and magazines are full of games. People know it's important to choose the right programs—but how do you go about it?

The pleasure of learning

For 10 years people have been using our products to improve their language skills. Writers, journalists, linguists, teachers and designers have worked with us to create materials which help people to learn—and to find pleasure in learning.

Now learning has a new dimension. Sulis Software programs offer new opportunities for every family to benefit from the individual tuition that a computer offers.

A unique offer

People are choosy about educational software—and rightly so. You need time to look at what's available and decide for yourself whether a program is right for you or for your family. So we are offering you a demonstration cassette or disk with samples of all our programs to run on your own computer in the comfort of your own home.

As you see each Sulis Software program in action, you can judge for yourself what the level is; whether you like the content, the graphics, the way the screen is set out and all the other factors that go into a good program.

English and French

Sulis Software specializes in programs for English and French—although we do have other subjects. Our programs aren't dull revision notes on screen—they are designed to improve spelling, vocabulary and grammar.

With English programs, that means better results in every subject, as well as better results from job applications. For French, it means increased fluency and accuracy.

Our promise: every time you sit down to a Sulis program, you'll enjoy yourself—and you'll learn something.

A satisfied user

Young Alastair M. failed his English Language O Level last June. He got a Grade D. He wrote to us earlier this year:

"I would like to compliment Sulis Software on their achievement in producing English teaching programs which are both enjoyable and usefully informative."

"I used the programs Wordpower and Besieged as part of my preparation for my English GCE O level exam re-sit, which I successfully passed with a Grade A result."

"It was essential that I passed the exam, an English language qualification being essential for entry to universities."

Try before you buy

Sulis Software sample cassettes only cost £1. If you prefer to use a disk, you can order a demo-disk for £2. And the cost of the sample cassette or disk is deducted from your first order.

Whether you are looking for games or grunt-work, whether you want a program for a pre-schooler or an adult—you'll find a program to suit you.

Take advantage of this very special offer and send off for your cassette or disk **TOOAY**.



Sulis Software Ltd
4 Church Street, Abbey Green, Bath BA1 1HL
Tel: (0225) 81929 Telex: 444337 Actavis GB

Cut out and mail today while stocks last.

To: Sulis Software Ltd., FREEPOST, 4 Church St., Abbey Green, Bath BA1 1FP

Tick the right box for your computer and cassette or disk.

BBC/B Sample A (spelling, vocabulary and grammar) Cassette ☐ £1 Disk ☐ £2

BBC/B Sample B (French, Spoken French and history) Cassette ☐ £1 Disk ☐ £2

Cambridge 44K (all programs on one cassette or disk) Cassette ☐ £1 Disk ☐ £2

Spectrum 48K (all programs on one cassette) Cassette ☐ £1

Please send me a colour catalogue of your programs ☐

Please supply the items listed above to:

(Please write in BLOCK CAPITALS)

NAME

ADDRESS

I enclose my cheque/money order made payable to Sulis Software Ltd for £

or — I wish to pay by (please tick box) VISA ☐ ACCESS ☐ MASTERCARD ☐

My credit card

number is

Name

Signature

If you prefer, you can order by
phone using your credit card
Tel: 0225 81929/86306

C



Starcade presents

SAVAGE POND

ATARI
COMMODORE
64™

£8.95
DISK OR CASSETTE

A truly remarkable depiction of life cycles in a freshwater environment. A semi-educational programme with high resolution graphics, crammed with thrills, spills and excitement, featuring:

Amoeba (Rhizopoda); Hydra (Chlorohydra Viridissima); Dragonfly (Erythronema Najus); Bloodworm (Phylum Platyhelminthes); Jellyfish (Craspedacusta Sowerbeii); Beetle Larva (Macrolea Leachi); Spider (Argyronata Aquatica); Water Fleas (Scapholeberis Mucronata); Bumble-Bee (Bombus Lapidarius); and our special guest star

THE COMMON FROG
(Rana Temporaria)

Awesome . . . in its conception
Brilliant . . . in its depiction
Dynamic . . . in its execution

"Savage Pond is a real joy. A totally unique concept, well thought out and superbly programmed. Whilst a far cry from the usual arcade action it retains all of the excitement. It is an ideal family game and children and adults alike will marvel at the graphics and storyline . . . you will not find such an original and compelling game anywhere else. Buy it and sit back knowing that one of the most original games ever programmed was written here in Britain." — PAGE 6 — an Atari Users Magazine.

DISTRIBUTED BY

CENTRESOFT
(021-520 7591)

P.C.S.
(0254-691-211)

LIGHTNING
(01-969 5255)

CALLISTO
(021-643 5102)

TIGER
(051-420 8888)

**ASK YOUR
LOCAL DEALER
OR
POST THIS
COUPON**

IF IN
DIFFICULTY
RING OUR
SUPERFAST
CREDIT CARD
SALES LINE:

051-487 0808 (24 hours)

STARCADE SOFTWARE, 2 Elworthy Avenue, L26 7AA.

Please rush me copies of **SAVAGE POND** suitable for Atari/Commodore 64 (DISC/CASSETTE)

Please debit by Access Card (Delete as necessary)

Card Number

I enclose Cheque/P.O. for £.

Name

Address

Plug-in graph plotting

VIC GRAF reviewed

by John You g

This is one for the mathematicians amongst you! VIC GRAF is a cartridge which allows you to study functions graphically. You specify a function and the program will plot a graph of that function and give you any data you

Let's look at these features in more detail. When you switch on with the cartridge attached to the Vic the screen displays:

Y(X)=

! DEFINE FUNCTION !

You must type in the function you are interested in, and this must be in terms of x . Suppose you are interested in the cubic equation $y=2x^3+3x^2-11x-6$ you would type $2^*x^3+3^*x^2+2-11^*x-6$.

You are allowed a maximum of 76 characters for your function, which should be quite enough!

Having typed in your function and hit RETURN you should see the program's menu screen giving you the following seven options:

MENU:

FOR SERVICE PRESS:

- F1-PLOT THE GRAPH
- F2-NEW FUNCTION
- F3-AXIS INTERSECT
- F4-EXPOSE FUNCTION
- F5-FIND MAX & MIN
- F6-CORR. IN EQUAT.
- F7-EVAL INTEGRAL

STOP RETURNS MENU

Pressing the appropriate function key selects the option you require. Usually you will want to see the graph first; press F1 and you will be asked for the range of values of x that you require.

Continuing with the example, let's have a look at the graph for the range -4 to $+4$. Type in $(-4,4)$ and sit back and wait. The Vic will now calculate the value of the function for 160 evenly-distributed values in the specified range, depending on the complexity of the function this can take up to 20 seconds. Then the graph is plotted in high resolution on the screen.

Here's what you would see.

NEW INTERVAL? YES NO

126

84

42

-4 -2 0 2 4

-42

require, such as maximum or minimum points; it will also give you the coordinates of the points where the graph crosses the x -axis and evaluate integrals.

Plotting the graph takes about a minute. The axes are always placed such that the graph will fill the display. Sound accompanies the plotting of the graph, too - up or down the scale if the graph is going up or down, a rather odd noise round turning points! This drove me (and my Sixth Form) mad after a short time; still, you can always turn the volume down.

Once the graph is plotted you are given the option to plot it again over a different range of values of x ; this means that you can 'blow up' any part of the graph to see it in more detail. For example, you might wish to have a look at the above graph between $x = +2$ to investigate its behaviour round the origin.

Once satisfied with the graph you may request data on turning points or intersection with the x -axis; for this example the program would find a maximum at -1.94 , 12.028 , a minimum at 94 , -12.028 , and axis intersects at $x = -3$, $x = -1/5$ and $x = -2$.

Another nice feature is evaluation of integrals. You can find the area under the graph for a specified range, the program uses Simpson's Rule to evaluate the integral.

It is possible to return to the menu at any time using the RUN/STOP key.

I have mentioned most of the options, but there's also F2 (which allows you to define a new function), F4 (simply displays the current function) and F6 (lets you correct or amend the current function).

The program will never crash with a 'division by zero' error since every value of x is increased by a billionth. So it is possible to study any graphs with discontinuities such as $1/x$. Depending on the range of x specified, the graph may look rather pathetic! But it is easy enough to alter the range, so this does not present a problem.

Attempting to plot a graph of a function such as $x/5$ requires care since the Vic, like many calculators, returns an error when trying to raise a negative number to a fractional power.

Boolean expressions are not permitted when defining the function: it is possible to get round this problem by using an expression such as $X/ABS(X)$ to give the sign, for this will be -1 when X is negative and $+1$ when X is positive.

VIC GRAF is very easy to use, and the instructions which come with it are very clear and helpful. As a maths teacher I find this extremely useful; it's one of the best programs I have for my Vic. My pupils at school have also learnt much from it.

| Under review | VIC GRAF |
|--------------|---|
| Description: | Cartridge giving Graph-plotted representation of mathematical functions |
| Supplier: | Handic Software Ltd Index House Ascoj Berks SL5 7EU |
| Telephone: | 0990 23377 |
| Summary: | Good, easy-to-use teaching aid. |
| Price: | £29.95 |

Now the Commodore 64 means business

The Game's over. Wouldn't you like to increase the applications potential of your Commodore 64? Transform it from a fun family computer into a truly professional tool? Now — thanks to Handic, the world's largest creator of Commodore software — you can give a powerful new dimension to your 64's performance. We have planned a new program called CALC RESULT that dramatically expands the financial planning potential of your Commodore.

Doctors, Dentists, Lawyers, Bankers, Brokers and other money managers exploit it to keep track of complex client accounts. Builders, Garage Owners, Retailers of all sizes, and

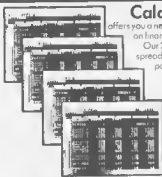
descriptions now use the spreadsheet formula for instant feedback and analysis of trading results. In a world where ease of access and speed of assessment are essential, CALC RESULT gives everyone the power to harness the untapped potential of their Commodore.

CALC RESULT is versatile... use it to calculate loan and mortgage payments, forecast budgets, balance cash flow, monitor stocks and shares, plan personal and corporate taxation, check expenses, lag and analyse all kinds of bills.

CALC RESULT instantly translates figures into multi-coloured bar charts. It has a built-in 'HELP' function and is absolutely accident proof.

Calc Result

offers you a new perspective on financial planning. Our 3 dimensional spreadsheet sums up pages of figures in one easily understood financial model.



£99.00 (inc.VAT)

Calc Result Advanced

All functions in Calc Result Easy plus 32 pages (Three dimensional viewing) Page add, window, split-screen (up to four pages on the screen at the same time), and help functions.

Delivered on plug-in cartridge plus disk. Requires disk drive.

For more information contact our Advisory Centre on 0344-778800 or simply contact your local Commodore or lightning dealer, or clip the coupon.

£49.95 (inc.VAT)

Calc Result Easy

Single page spreadsheet (64 columns x 254 rows). Built-in graphics. Formula protection, flexible print-out, colour conditional functions and mathematical functions. Delivered on plug-in cartridge. Data storage on cassette or disk.



I would like you to send by return post further information on the Handic 64 range.

Name

Title

Company

Address

Tel

5 Albert Road, Crawthorne
Berksire RG11 7J1
Tel. 0344-778800 Telex: 819426

handic
software Ltd

Thinking ahead

Forth



Forth and the Vic

Part Two — Vic-Forth reviewed

Vic-FORTH is a cartridge implementation of Forth produced for the Vic-20 in Sweden. Handic sells it in the UK and provided me with a copy for evaluation.

The cartridge comes packed in the standard Commodore-style wrapping, the contents of which are mostly box, the cartridge and a manual.

The manual has a glossy science-fiction picture on the front — which has little to do with the subject matter, other than I suppose that one of the first applications for Forth was to guide the Kuts Peak astronomical telescope!

At first glance the size of the manual is disappointing: just 32 A5 pages. Forth radically changes the familiar parameters learned from the *Vic Programmers' Reference Guide* and a manual approaching that size would be the first reference source to turn to. As it is, it is probably one of the last reference sources to use...

There are two pages of introduction. They advise that this implementation is 5g-Forth (one of the standard versions of Forth) plus special extensions that make it compatible with PET-FORTH and the Vic. A few of the major departures are listed together with a catalogue of error messages.

The remaining pages contain a straight listing of the system dictionary with descriptions and stack diagrams.

There are some interesting typographical happenings that make it more difficult to read than was presumably intended. (Can the word 'och' which appears at the least three times be the Swedish for 'and'? My knowledge goes only as far as the Danish, which is 'og'. And the stack diagram for the multi-

plication fraction (*) reads

```
* n1 n2 ... n2
... where I am sure that the last n2
should be n3, being the product
of n1 and n2
```

Missing from the manual is a memory map and instructions on how to use the editor

To take these in turn: the Vic-Forth cartridge will operate with any memory configuration. The video RAM is at \$1000, beyond that you are left to explore for yourself.

The [DUMP] command displays in a row of four bytes and hex values contained between two memory addresses. Using this I discovered that most of the zero-page memory is truly zero, even down to the memory pointers at \$B5 et seq. \$B91 — \$B94 are however present. Apparently cold start is at \$B000.

In fact I had to remove my VICKIT ROM chip (which also sits at this location) before I could get the cartridge to work with the expanded Vic. When this was done I was happy to discover that 19K was available to me for Forth programming.

It appears that it is necessary to know what RAM is available, since the system does not warn when the dictionary is full: presumably it crashes. Hence...

```
: ?FRE 644 C8 256 * HERE -;
... which entered first will give free RAM in bytes.
```

With the information that the cartridge comes with 3K expansion RAM for the \$0400-\$1000 slot, my tentative memory map is as follows.

| | |
|--|------|
| Some zero-page used >\$80 | 0000 |
| System stack and work areas | 0100 |
| 3K expansion system and user variable | 0400 |
| Video RAM | 1000 |
| General work area and user RAM for dictionary extensions | 1300 |
| VIC chip etc | 5000 |
| Forth ROM | A000 |
| Basic ROM — not available | B000 |
| KERNAL ROM | C000 |
| | E000 |
| | FFFF |

The editor is not present in the ROM. It is supplied as a loose-leaf addendum to the manual in Forth screen format. It comprises some half-dozen screens of source code.

There is an innate problem here, given no disk drive, of a chicken-and-egg nature. To use the screen format and insert source code on to the various screens the [PUT] command is required. This is part of the editor. But the editor is the

source code to be inserted... It took me days to come to terms with this! The solution is to enter the editor word for word in the direct mode.

A further problem appears to be the length of some of the definitions. For instance, [WHERE] needs to be broken down into more than one part. The length of a definition in the direct mode cannot be more than about 70 characters from : to :

Having entered the editor it may be stored on tape with the [CSAVE] command. This saves all the Dictionary entries, presumably as object code. The editor should make it relatively easy to enter any source code and compile it into the dictionary. But again without a disk drive this task is made very difficult.

Forth screens are usually held in storage on disk and are transferred to the disk buffers in RAM for access by the [LIST] commands as required. Although after producing plenty of disk error messages I could clear a screen for editing and enter code on to it, it nearly always failed to [LOAD]. Thus I was forced to enter code directly, which makes program writing very tiresome. Although the dictionary can be examined by the [VLIST] command there is no way to tell if definitions have been entered correctly.

My lack of disk drive was the greatest hindrance I found in using this cartridge.

The screen is a standard Vic display, 32 by 23, and scrolls up in the normal manner. No conce-

COMMODORE USER

Vic 20 - CBM 64 Owners ENTER THE EXCITING WORLD OF ROBOT CONTROL WITH A

LWS

Robot Drive Interface

Interface 1: Gives COMPLETE INDEPENDENT computer control of up to 4 DC motors or 2 Bi-Pole stepper motors.

Stop/Start/Forward/Reverse is easily achieved by simple pulse commands. Range 6 - 12 volts. **£35.00**

Interface 2: As above, but controls 2 DC motors or 1 Bi-Pole stepper **£25.00**

Interface 3: Drives 2 Uni-Pole stepper motors or 8 DC motors/relays. Range 6 - 12 volts. **£29.95**

All interfaces are supplied with software, edge connectors and power leads. Prices include V.A.T. and P&P.

NB Does not include: motors and DC power supply - can be supplied separately - please phone for quotes

Vic 20 mother boards:
3 slot switchable **£18.95**

4 slot switchable **£21.50**

L.W. STAINES & CO.,
Unit 2, Redding Trading Estate,
London Rd, Barking, Essex IG11 8BU
Tel: 01-661 2900

LOW PRICE HIGH QUALITY BUSINESS SOFTWARE FOR COMMODORE 64 AND 32K PET

PURCHASE AND SALES CONTROL £80 + VAT

Runs both purchase and sales ledgers with optional calculation of VAT from the gross or net amount, analysis by accounting period, 'due for payment' report, totals for net VAT and gross. Prints invoices on your own stationery laid out according to your own instructions.

NOMINAL LEDGER £60 + VAT

Produces trial balance and up to 20 reports in addition to profit and loss and balance sheet. This program is intended for use on its own, but it can take over set-up by our purchase and sales control.

PAYROLL £99.50 + VAT

Seven rates of overtime, all tax codes, pay slips, full deduction cards, etc.

COMPLETE INTEGRATED ACCOUNTING

System for the Commodore Pets; 4082, 8032, 8096 and Commodore 64. from **£400.00**

Write or phone for details and complete software list.

ELECTRONIC AIDS (TEWKESBURY) LTD

19, Drysdale Close, Wickhamford,
Evesham, Worcestershire, WR11 6RZ
Tel: 0386 831020

Introducing

for COMMODORE 64 the MST ADMINISTRATOR

ON TAPE & DISK

A USER-DEFINABLE INVOICES & STATEMENTS FORMATTER & DOCUMENT GENERATOR A COMPILED PROGRAM

THE ADVANTAGES OF WORD PROCESSORS & SPREADSHEETS
COMBINED IN THE NEW AND EXCITING PROGRAM FROM MST

- * Format & Print your own documents, or use those provided
- * All VAT, discount, totalling calculations done automatically
- * Use plain English - No programming needed.
- * Use plain paper or continuous pre-printed stationery
- * Compiled program for high operating speed

- * User-defined footer messages
- * Double or single size characters
- * Save documents and use when required - SALES & PURCHASE INVOICES, QUOTATIONS, DELIVERY & PACKING NOTES, ADVICE NOTES, STATEMENTS, REMITTANCE ADVICE NOTES, ETC.

PLUS HORACE HELPER ON DISK PROGRAMS

Also available: MAILER/ADDRESS BOOK, and STOCK CONTROL SYSTEM

MORE FACILITIES at NO EXTRA COST

Tapes: £19.95 inc. VAT* Disks: £24.95 inc. VAT* (*UK only)

DEALER ENQUIRIES WELCOME

Tick the appropriate box. Prices include postage and VAT

TAPE £19.95 EACH INC
☐ MAILER/ADDRESS BOOK
☐ STOCK CONTROL
☐ STOCK CONTROL
☐ ADMINISTRATOR

Cheques etc. should be made payable to MST CONSULTANTS

NAME

Address

Card Number

MST Consultants, Newton Road, Bovey Tracey, Devon TQ13 9BB. Telephone: 0828(6)32217

DISK £24.95 EACH INC
☐ MAILER/ADDRESS BOOK
☐ STOCK CONTROL
☐ ADMINISTRATOR



MST
CONSULTANTS

Cost effective
business software
for home computers



son has been made to the Forth standard 6406 format, except when a block (screen) is viewed by the editor.

The editor contains two splendid words. [VIEW] takes the screen number as a parameter and selects it for editing, by using the cursor keys to position the cursor on the desired line and pressing RETURN, that line is displayed for editing.

[X] is similar, but uses the current value of [SCR] as a parameter - which means it operates with the current screen only.

The beginner is going to do two things in quick succession. First, you'll get an error message; then you will cause a system crash. Error messages are displayed as a number with an explanation of the code in the manual.

I managed to summon quite a few of these while finding my way through sundry operations. But I was particularly confused by error message # 0 which is

not listed in the manual at all: I only assume that it means "I obtained message # 11, too, which also has no explanation."

System crashes occur frequently when the user has insufficient understanding of Forth. It is relatively easy to isolate the offending word or definition and change it. Stack over- or underflow can cause problems; and the words [DEPTH] and [S], which display the depth and values of the stack respectively, can be useful. Sadly Vic-Forth supports neither of these, so here they are:

depth (- N) sp@ 136 swap - 2 /

: s cr depth if sp@ 2 - 134 do 1 @ - 2 + loop else "stack empty" then;

Together with the editor listing is one for an Assembler, supporting what appears to be the usual 8008 instruction set. I have up bying to enter it after several hours of daunting effort without full editing and storage facilities (on

disk) it is a thankless task. Similarly my attempt at entering a game met with the same sad as well as dispiriting me.

In conclusion

The result of this, not having a resident editor and the problems encountered in storing code, is to make this particular implementation very difficult for a beginner to use. I am not a complete beginner; and I experienced such difficulties as I have described. Too much knowledge of Forth systems is assumed.

You will also be severely restricted by lack of disk drive, and therefore this cartridge cannot be recommended if one is not available. Which is a shame, since most Vic owners will probably not own a disk drive.

So unless the user is tenacious, perspicacious, willing to read lots of books, dedicated to Forth, or all of

these and more, he will soon lose heart. On the other hand with some knowledge of Forth, he or she will soon be at home with this implementation.

Pricewise £38.95 is tediously high. But if you have spent hundreds on a disk drive what's more £39? Actually if other machines can support Forth implementations at the RRP of some £15, then £39 is still excessive - notwithstanding the 3K RAM you get. (This is a problem generic to the market and is many Commodore products specifically.)

So, if you are well into Forth already Vic-Forth has much to recommend it. I would suggest that it makes a good effort at implementing a full fig-Forth system.

Cautious experimenters? Steer clear. Much as I enjoy Forth it is with regret that I say this. I feel that an opportunity has been lost to introduce this fascinating language to home users.

A great line up of 17 NEW titles... direct from CANADA

FOR ZX81 SPECTRUM VIC 20 IBM ATARI

Just run your eyes over these new titles now available through "SOFTCHOICE LTD" the U.K. subsidiary of the well-known Canadian Software House INTERNATIONAL PUBLISHING & SOFTWARE INC. Purchase with confidence. Superior EDUCATIONAL, UTILITY and GAMES SOFTWARE.

EXCITING NEW GAMES FOR FAMILY FUN AND LEARNING FOR ZX81 AND SPECTRUM



10K
Addition, Multiplication, Subtraction facts for ages 5-10 yrs.
For Spectrum
Cassette £9.95



TAKE 1000
Take away 2000 Subtraction facts for ages 5-10 yrs.
For Spectrum
Cassette £9.95



TRY 1000
The key to understanding and learning the numbers 1-1000.
For ZX81
Cassette £9.95



XZ81
Solve and hear the letters and numbers in order. On demand randoms in messages. In some letters for ZX81
Cassette £9.95



XZ81
What if you forget? Only guess and learn. Guessing and learning. Come quickly or you will perish!
For ZX81 & Spectrum
Cassette £9.95



10K
Speed 10K
Solve 1000 word puzzles in 10 different ways to challenge your skill.
For ZX81
Cassette £9.95



10K
1000 Minutes
Race through 1000 minutes, avoid the traps! Exciting action with graphics!
For ZX81
Cassette £9.95

CHILDREN'S & HOME EDUCATIONAL GAMES for the COMMODORE 64, ATARI 400/800 DISKS Only, at £14.95 each incl.



THE ALPHABET FACTORY
Two arcade style games that teach children the alphabet!
C64 - disk
Ages 5-8 years



MATCH UP
Three high interest games that teach children to read!
C64 only
Ages 5-8 years



THE WORD BIRD
Three different games each designed to increase a child's reading vocabulary!
C64 only
Ages 6-12 years



TIME ZONE
Four exciting games that develop the needed language skills for successful reading!
C64 only
Ages 6-12 years



10K
10K
For all the family. Brains on wheels with the computer's backing!
VIC 20, C64 & Z80
Ages 5-12 years

GREAT UTILITY AND BUSINESS SOFTWARE FOR ZX81, SPECTRUM, VIC 20, COMMODORE 64, ATARI



FASTLOAD
Fast, efficient and complete word processing package by Dr M. Pearson
For ZX81
Cassette £7.50



FASTLOAD
any programme up to 6 lines faster than normal! By Dr M. Pearson
For ZX81
Cassette £7.50



DIET
Gain control over your eating patterns. By Dr M. Pearson
For ZX81 & Spectrum
Cassette £5.95



CALC-PRO
A great tool for home or business. Complete financial spreadsheet & more. Available as programme VIC 20, Commodore 64, Z80
C64 disk, £14.95



GRAPH-IT
An easy to use tool to produce graphics displays. For VIC 20
Cassette £9.50

NOW TO ORDER BY TELEPHONE 091-01 3084
If you are a Bursar or Access holder please telephone and give your Card No. Name, Address and item required for immediate dispatch.

Post to: **SOFTCHOICE LTD**
62 PLATTS LANE, LONDON NW3 7NT

Please send me the following items (Send address sheet if you do not want to publish)

NAME TITLE TOTAL COST

NAME ADDRESS

PLEASE send me 7 to 10 days for delivery and handle additional cost for the same as postage

I enclose my cheque/PO for £

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

100% by cheque/PO

SOFTCHOICE LTD.
62 PLATTS LANE, LONDON NW3 7NT
TEL: (01) 431 2494. TELEX: 923753

SOFTCHOICE

CBM 64 & VIC 20 CENTRONICS PRINTER INTERFACE VICSPRINT 2064



£49.95

INC. VAT (£1 P&P)

**SMITH CORONA TP1
PLUS VICSPRINT 2064**

ONLY

£299.00

INC. VAT (CARRIAGE £7.50)

*** A smart cartridge which plugs into the user port of either the CBM 64 or VIC 20, with a cable connecting the serial IEEE port on disc drive or computer plus a ribbon cable with 36 way centronics plug to plug into your printer.

*** Looks like 'standard' CBM 64 or VIC 20 printer (without graphics).

*** Leaves cartridge port free for cartridge based software.

*** Totally 'system software transparent' (try using a ribbon cable adaptor with 'Vicwriter').

*** Works with 'Easyscript', 'Practicalc' etc. and a large range of printers including Juki 6100, CP80, Gemini 10X etc., etc.

*** TWO YEAR GUARANTEE As manufacturers of this product we can offer a guarantee of two years with the utmost confidence.

*** Please confirm your requirements and suitability with us before purchasing.

*** Ribbon cable version available price £17.50 inc. VAT (£1 P&P) works with several packages but requires software adaptor tape to do listings etc., (£7.95).

*** Overseas price (£43.43) add £3 P/P, or £1 for B.F.P.O. orders.

*** AVAILABLE FROM THE MANUFACTURERS:

RAM ELECTRONICS (FLEET) LTD., (CCI)
106 FLEET ROAD, FLEET, HAMPSHIRE GU13 8PA
Telephone: (02514) 25252.

Callers welcome Monday to Saturday (closed Wednesday)

Send cheque or postal orders or pay by VISA or ACCESS

IDEAL FOR WORD PRO PRINTING, ETC.

If linked to the Duplex Dial-Text your Computer will have:

- A COMMUNICATIONS LINK to all internal and remote offices using standard telephone lines with error detection and correction.
- REMOTE PRINTING to typewriter or printer
- A STORE for letters and documents for printing later
- ACCESS TO TELEX NETWORK through a bureau

Full details from  sole suppliers.

DUPLEX

Communications

The Interface People

Midlands/North - 2 Laire Lane, Dunton Bassett, Nr. Lutterworth, Leicestershire LE17 5JP. Tel: 0455 254398
South - 52 High Street, Stock, Essex CM4 9BW. Tel: 0277 841011

Wordcraft tips

Getting more from Vic WP

by Mike Apsey

Page jumping

Although it is not clear in documentation, the sequence **Ctrl P** may be followed by either a (HOME), (CLEAR), or a page number, to move to either the home position, end of text, or specified page in that order. Remember that page numbers greater than nine must be called by enclosing the number in parentheses. Thus, the command **Ctrl P (25)** would move to page 25, if that page exists. Forgetting the parentheses moves to page two.

Twin single disks

If more than one disk is used, and the second drive has been hardware changed to number nine, the second drive may be called by entering **D,1** on the command line. To return to drive eight, enter **D,0**.

Printer tricks

To make your printer do tricks, try adding 128 to the value of the number to be sent in the escape sequence if you are using a **CARD PRINT**. These values follow "A" from the **COMMAND** mode, and always begin with "ST" (which is the escape code, telling the printer not to print the character(s) that follow). If your printer needs two numbers - as in the case of margins, etc - just add the additional character values with commas between.

Double-spacing

Although mentioned in the Wordcraft manual, double-spacing is possible if the command **P,D** is used.

Page numbering

Like the above, page numbers can be similarly added but the consecutive numbering must be inserted by hand. To number pages, let Wordcraft break your pages for you, and at the beginning (or end) of each page, insert the line to contain the number and tab to the position (or centre the number, or begin on the left). Number your pages as the last operation before printing.

Filenames

Spaces and characters that are not alphabetic or numeric (including asterisk, backslash, and hyphen) will be rejected with **FILENAME NOT VALID**. Should you find your own filename invalid, check for occurrences of these, and omit them from your subsequent filename attempts. The asterisk cannot be used as a "wild card" in file locks. Instead, the directory should be called and the full name used.

Caution

Under no circumstances should the power status of a peripheral be altered while using Wordcraft as it will likely result in a lock-up. Instead, if you have entered significant text without having remembered to turn on the disk or printer, save your text to cassette before proceeding. It's a good idea to have the cassette connected at all times for such emergencies.

Insertions

Although the **INSERT** mode will continue opening space, it is possible to cursor out of the **INSERT** space and command some format change, disengaging the **AUTO-INSERT** function. When **INSERTING**, try to stay with the task instead of jumping around. If it is necessary to move from your insertion space to other text areas, be aware that upon returning, additional space may not open when the allocated space is used up, and you will begin over-typing.

Headings/Footings

Although automatic headings and footings are not implemented, if you find them necessary begin on each page with a single line containing "H1" or "F1" (header or footer); then use the global search/replace option to find and change them before printing.

Embedded printer commands

Printer commands are displayed as reverse field characters. If you have forgotten what a command is, enter **Ctrl C**; and as you move from line to line, the embedded commands will be displayed on the **COMMAND** line. If you are somehow hopelessly lost as to how to remove something, delete the line, and re-enter it. I recommend this procedure if you have repeated tabs or other problems difficult to sort out.

Changing paper types

You may change from continuous to hand-fed paper without exiting Wordcraft by entering a **C** for continuous, **H** for hand-fed.

Centering

If the line you wish to centre is longer than the video display chosen, only the words appearing on the line containing the command will centre. For this reason, toggle to a width greater than the width of the line to be centred with the "W" command before centering, then back. When your document is printed, the chosen line will be properly centred.

How to type in Virtuals

How we reproduce listings

We usually put our listings for Virtuals and other programs through a code conversion program that replaces the hieroglyphic Commodore colour and screen control symbols with a more meaningful set of commands.

| When you see... | It means... | And you... |
|-----------------|------------------------------------|---|
| [CUP] | cursor up | press the 'cursor up' key (shifted) |
| [CUD] | cursor down | press the 'cursor down' key |
| [CUL] | cursor left | press the 'cursor left' key (shifted) |
| [CUR] | cursor right | press the 'cursor right' key |
| [BOM] | cursor to the top left-hand corner | press the HOME key |
| [CLR] | clear | press the CLR key (shifted) |
| [INS] | insert | press the INSet key (shifted) |
| [BLK] | change to black | press the BLK key (CTRL and 1) |
| [WHT] | change to white | press the WHT key (CTRL and 2) |
| [RED] | change to red | press the RED key (CTRL and 3) |
| [CYN] | change to cyan | press the CYN key (CTRL and 4) |
| [PUR] | change to purple | press the PUR key (CTRL and 5) |
| [GRN] | change to green | press the GRN key (CTRL and 6) |
| [BLU] | change to blue | press the BLU key (CTRL and 7) |
| [YEL] | change to yellow | press the YEL key (CTRL and 8) |
| [RVS] | reverse on | press the RVS ON key (CTRL and 9) |
| [RVO] | reverse off | press the RVS OFF key (CTRL and 0) |
| [SPC] | space | press the space bar, repeat the specified number of times |

We have two methods of presenting listings. When we print, we run them through a converter program that replaces the hieroglyphic control codes with more meaningful symbols.

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer in which case you may see the standard control codes.

| | | | |
|---------------|----|---|--------------------------------|
| CLP | .. | L | (REVERSED HEART) |
| NAME | .. | ■ | (REVERSED S) |
| RVS ON | .. | ■ | (REVERSED B) |
| RVS OFF | .. | ■ | (REVERSED UNDERSCORE) |
| CURSOR UP | .. | □ | (PLAYERS SHIFTED 8) |
| CURSOR DOWN | .. | □ | (REVERSED 0) |
| CURSOR LEFT | .. | ■ | (REVERSED 9) |
| CURSOR RIGHT | .. | ■ | (REVERSED LEFT SQUARE BRACKET) |
| SET COLOUR TO | .. | | |
| BLACK | .. | ■ | (REVERSED SHIFTED P) |
| WHITE | .. | ■ | (REVERSED E) |
| RED | .. | ■ | (REVERSED 2) |
| CYAN | .. | ■ | (REVERSED COMMODORE-SHIFTED 8) |
| PURPLE | .. | ■ | (REVERSED COMMODORE-SHIFTED 4) |
| GREEN | .. | ■ | (REVERSED UP ARROW) |
| BLUE | .. | ■ | (REVERSED LEFT ARROW) |
| YELLOW | .. | ■ | (REVERSED P1 SIGN) |

THE FUNCTION KEYS 1-4 BE BE PLACED INTO PRINTING STATEMENTS TOO, AS WITH THE OTHER HIEROGLYPHS. KEYS 5-8 THEY APPEAR AS SPECIAL.

SYMBOLS 1-10 LISTING

| | | | |
|---|---|----|---|
| 1 | ■ | 11 | ■ |
| 2 | ■ | 12 | ■ |
| 3 | ■ | 13 | ■ |
| 4 | ■ | 14 | ■ |

Home
Computer
Centre



208 Aigburth Road, Liverpool L17 9PE
Tel 051-727 6050

ASTERFRET TRADING LTD INCORPORATES
HOME COMPUTER CENTRE

VIC 20 and CBM 64 are registered trade marks
Commodore Business Machines



Special Offer
5% Discount
on orders of two or more products.



For the Commodore 64

- 4 SLOT SWITCHABLE MOTHERBOARD £29.95
5 SLOT SWITCHABLE/
BUFFERED MOTHERBOARD £42.50
80 COLUMN/GRAFICARO £68.95
PIXSTIK (inc. Paintbox & 3 Games) £29.95
PRO ACE JOYSTICK £12.95



For the VIC-20

- 16K STANDARD RAM PACK £27.95
16K SWITCHABLE RAM PACK £35.95
32K SWITCHABLE RAM PACK £49.95
64K RAM PACK + 2K EPROM £64.35
2 SLOT MOTHERBOARD £ 6.85
4 SLOT SWITCHABLE MOTHERBOARD £28.95
5 SLOT SWITCHABLE/
BUFFERED MOTHERBOARD £34.45
40/80 COLUMN CARO £84.95
PIXSTIK (inc. Paintbox & 3 Games) £29.95
PRO ACE JOYSTICK £12.95

All products are fully guaranteed



A LIGHT RIFLE



When ordering any product advertised on this page, answer the following question and you could win a Light Rifle. Runners-up will receive a games cassette from Enigma:-

NAME THREE ENIGMA (SOFTWARE) LIMITED GAMES TITLES

Rules and Regulations

1. The competition is open to all persons ordering any product advertised on this page, except employees of Asterfret Trading Limited and Enigma (Software) Limited.
2. The answer must be written legibly and submitted with your order.
3. Entries will be divided into two categories - VIC 20 and CBM 64 owners. The winners will be the first correct entry drawn from each category. A further 10 entries will be drawn from each category and will receive a consolation prize.
4. The winners will be notified by post by 15th June 1984 and their names may be published in any advertisement or notice at the discretion of Asterfret Trading Limited.
5. The closing date for the competition is Friday 8th June 1984.

Please allow up to 21 days delivery. All prices include V A T, postage and packing.

Please specify machine ☐ CBM 64 ☐ VIC 20

I wish to order:-

£
£
£
£
£
£
Deduct 5% discount if applicable
£

Name _____
Address _____

Please debit my Access

Card Number

I enclose Cheque/PO for £



Victuals

Wordsearch

by Keith Edward

```

10 POKES1,255:POKES2,27:POKES5,255 POKES5,27 OOSUB40 POKES6970,15 A=ENDC(TI)
20 POKES6970,27 PRINT"***** WORDSEARCH
30 PRINT"*****TRK(10)"SV
40 PRINT"***** KEITH EDWARDS
50 FORI=750TO195
60 IFPEEK(I)*32THENPOKEI,INT(RND(1)*25)+1 OOT060
70 POKEI-512,1
80 POKEI+30720,0:NEXT OOSUB55:FORI=1TO1000 NEXT
90 DIR#(30) CT=750 TC=30400 PRINT"77
100 INPUT"HOW MANY WORDS?"M
110 M=VAL(M) IFM<0THENPRINT"DIFFICULTY" OOT0100
120 IF0<MTHENPRINT"MAXIMUM PLEASE." OOT0100
130 FORA=1TOM
140 PRINT"WORD"R="M" INPUTR(A)
150 IFLEN(R(A))>10THENPRINT"TOO MANY LETTERS" OOT0100 MAXIMUM PLEASE." OOT0100
160 FORI=1TOLEN(R(A))
170 IFIND(R(A),I,1)<"A"ORIDA(R(A),I,1)>"Z"THENPRINT"LETTERS ONLY PLEASE!" O
OOT0100
180 NEXT I
190 OOSUB40
200 PRINT"3 PRINTED COPY ? (Y/N)
210 PF=0 OOT010 IFOT=" THEN210
220 IFOT="Y"THENPF=1 OOT0240
230 IFOT="N"THEN210
240 PRINT"3 POKES6970,11 FORI=0TO21 POKETC+1,3 POKETC+1,150 POKETC+1+404,3 POKE
CT+1+404,150 NEXT
250 FORI=0TO22 POKETC+22,1,3 POKETC+22,1,150 POKETC+22+1+21,3 POKETC+22+1+21,150
NEXT
260 FORJ=1TOM
270 BL=INT(SND(1)*255)+CT S=SL
280 DX=INT(RND(1)*3)-1
290 DY=INT(RND(1)*3)-1:J=22
300 IFDX<0ANDDY<0THEN280
310 FORA=1TOLEN(R(A))
320 IFPEEK(RA+32)THEN340
330 IFPEEK(RA+32)ASC(MID(R(A),J,1))-64THEN270
340 B=B+M+DX+DY NEXT
350 FORI=1TOLEN(R(A))
360 C=ASC(MID(R(A),J,1))
370 POKES6970,INT(RND(1)*120+120) POKES1+30720,0 POKES1,CA-64 POKES1-512,1
380 BL=BL+DX+DY
390 POKES6970,0:NEXT I,J
400 FORI=775TO152
410 IFPEEK(I)*32THEN POKEI+30720,0:POKEI (INT(RND(1)*25)+1)
420 POKES6970,(1-770)/4+120 NEXT
430 POKES6970,0 POKES6970,27
440 IPPF=1THEN730
450 C=770:J=0
460 IFPEEK(CP+X)=150THENPOKECP,TL+OOSUB71: OOT0400
470 CP=CP+X:TL=PEEK(CP) IFTL<27THENPOKECP,TL+120
480 DET=0 IFZ=" THEN400
490 IFZ=" THENPOKECP,TL+X=22 OOT0400
500 IFZ=" THENPOKECP,TL+X=22 OOT0400
510 IFZ=" THENPOKECP,TL+X=1 OOT0400
520 IFZ=" THENPOKECP,TL+X=1 OOT0400
530 IFZ=" THENTL=TL+120 OOSUB69: POKECP+30720,4 OOT0400
540 IFZ=" THEN500
550 IFZ=" THENTL=TL+120 POKES1+30720,0 IFTL<120THENTL=TL+120 OOT0400
560 IFZ=" THEN550
570 OOT0400
580 POKES1,PEEK(CP)-120 POKES1+30720,0 OOSUB55
590 PRINT"***** ANOTHER 0 ? (Y/N)
600 OOT010 IFOT=" THEN500
610 IFOT=" THEN540
620 IFOT=" THEN500
630 PRINT"***** SAME WORDS ? (Y/N)
640 OOT010 IFOT=" THEN550
650 IFOT=" THEN500
660 IFOT=" THEN500
670 RUN
680 IFTL<255THENTL=TL+120
690 RETURN
710 IFTL<120THENPOKECP,TL+120
720 RETURN
730 OPEN#4 PRINT#4,CHR(14)" WORDSEARCH".PRINT#4
740 FORS=1TO21 PUS=" FORC=1TO20
750 PUS=PUS+CHR(PEEK(CT+C-220)+64)+ "
760 NEXT C:PRINT#4,CHR(15)+PUS NEXT
770 PRINT#4 PRINT#4,"TRY TO FIND THESE HIDDEN WORDS -" PRINT#4

```

Wordsearch will only run on the unexpanded Vic-20. The computer hides up to a maximum of 30 words in a 20 x 21 matrix. The words are hidden at random either vertically, horizontally or diagonally and either forwards or backwards.

The maximum length of each word is 18 letters. A routine is included, check this and that words contain letters only.

The option is then given to obtain a printed copy of the word square. If the printer is not available the game can be played on the Vic screen. Each word, as it is found, can be high-lighted in reverse field. This is achieved by moving the cursor over each letter of the word in turn and then pressing the return key in order to highlight it. The cursor is moved by using the normal cursor movement keys. The other commands which may be used in this section are:

1. To rub out a wrongly highlighted letter Press R
2. To reveal the solution (give up) Press G
3. To quit this section Press Q

After pressing either G or Q the option to have Another Go is given. If the user answers Y then the option is offered to keep the same words and have them re-hidden in a completely different matrix.

If the printer option is selected then the user is asked if he/she wishes to keep the display. The command G can then be used to reveal the solution to the printed version.



```

780 FORA=1TOM:PRINT#4,A(R) NEXT C:064
790 PRINT"*****KEEP DISPLAY ? (Y/N)
800 DET010 IFOT=" THEN730
810 IFOT=" THENPRINT"*****" OOT0400
820 IFOT=" THEN730
830 OOT0500
840 FORI=7191TO7650 POKES1,0 NEXT RETURN
850 FORI=7191TO7650
860 Q=PEEK(I+512)+120
870 IFQ>255THENQ=Q-120
880 IFPEEK(I)=1THENPOKEI+512,0
890 NEXT I:RETURN

```

©1987 SIMCO-VIDEO

The STEAM POWERED COMPUTER COMPANY Limited



CBM 64 SOFTWARE THAT MEANS BUSINESS

Stock Control Can handle up to 2000 items of stock per 1541 disk or up to 88000 with a hard disk and interface and gives the storekeeper a fast and accurate method of controlling stock. Features include menu-driven options for simple use, pre-defined fields for all important parameters VAT and total stock liability, full reporting on goods on order, out of stock, etc and will also allow the change of VAT rate etc and far more. Please ask for our fact file on this program.

DISK VERSION ONLY AVAILABLE AT £9.00 inc VAT

Monthly ledger Up to 150 nominal cells, double entry journals monthly year to date and year and accounts, monthly comparisons with full clear reports with accounts generated and headings that include list of accounts, month to date year to date trial balance, trading account profit & loss and day book ledgers are a few of the many features of this superb account ledger program. It also integrates with purchase and sales ledgers.

DISK VERSION ONLY AVAILABLE AT £6.00 inc VAT

Purchase ledger 100 suppliers with up to 70 outstanding invoices per month or 50 suppliers with 40 outstanding invoices per month (using 1541 disk drive). Aged creditors with 4 age groups options to list by account balance etc. etc. list pressing, pay by date highlight for securing settlement discount or staying out of it all! Agges these are only a few of the advanced space for the professional purchase ledger program fully integrates with Nominal.

DISK VERSION ONLY AVAILABLE AT £9.00 inc VAT

Sales ledger Up to 150 on file accounts with easy access to customers by name or code number, statement production with masses of options - one at a time, all type card balances etc. Invoice card and note & label printing, sales analysis codes for 5000s by week or salesperson etc. Aged debtors with 4 ages, and of course much much more! Easy to use and integrates with Nominal ledger.

DISK VERSION ONLY AT £6.00 inc VAT

Cardfile 64 A comprehensive name and addressing filing system with address label & record card printing, hard searches on any 1 or 2 fields. Duplicates user-defined or group. Highly recommended.

DISK VERSION ONLY AT £6.00 inc VAT

DEVELOPMENT TOOLS

Eprom programmer Programs most ROMs such as 2716 etc. A complete stand program - NOT just a bare board. Usable with most micros - eg CBM 64 Vic 20 Pal BBC ATARI etc. Comprehensive software supplied allows POVs to be programmed from disk cassette ROM or computer memory source.

BUILT AND TESTED 78.00 inc VAT

Graphics pads Large A4 size pads with sheets of high quality paper printed in 'graph paper' blue available for

CBM 64 screen with POKE location and Sprites reference on both sides. 1 grid per sheet.

Vic 20 screen with columns and POKE references on each side. 1 grid per sheet.

User defined graphics 8 1/2 grid per sheet for designing your own characters etc.

CBM 64 graphs to help create and draw as you like the 64.

Screen display charts are also available for BBC AIB DRAGON ATARI and SPECTRUM computers.

All at £2.48 each inc VAT

GAMES WITH A DIFFERENCE

Tycoon Could YOU run a multinational company and remain a power long enough to enjoy your retirement without disrupting the Company? Hey you're chance is lost out. A challenging game that is different each time it is played.

DISK 11.00 CASSETTE 7.50

Holocaust You are the President of the U.N. - your task is to save off the holocaust of total global conflict - can you succeed? Can you prove to global harmony with lasting peace? A real challenge to seriously diplomate TRY IT - ALL YOU CAN LOSE IS THE WORLD.

DISK 11.00 CASSETTE 7.50

GRAPHIC ADVENTURES

42 Camelot Chase Rescue the fair maid from the evil clutches of her captivating tale here - sword slanders dogs and vicious vegetation the amazing graphic 2D adventure game with over 120 locations. If you try your family may ask you for more the while you attempt the near impossible!

DISK 18.95 CASSETTE 8.95

Trails Canyon You have been sucked through a time warp and are now at the Last of Trails - Navigating through labyrinthine canyons to collect the treasure to pay the Keeper Of The Gate and so secure your return to reality. Over 60 locations and full graphics.

DISK 18.95 CASSETTE 8.95

The Steam Powered Computer Company Ltd
59 Kennedy Road, Maybury, Southampton SO1 6DR Tel 0703 780201

Dealers! For our info hotline please contact the above address or ring Marten on 0703 26879

All prices include VAT. Postage 1.00 per item on orders under 10.00. 10.00+ postage is FREE. Cash with order only.

Anger
Productions

**CBM 64
Software**



FLIGHT SIMULATOR

Pilot your aircraft to the airport of your choice in U.K. Recall your position on the map at any time during your flight and experience the thrill of take off, flight and landing.

Joystick preferable. Cassette game £9.95p

YANTZEE

Play this very skilful old Chinese dice game either by yourself or with your family and friends (Up to 4 players). This champion uses 3 dimensional dice!

Cassette game £7.50p



PLAY GOLF

Take up the challenge to play Golf on this 18 hole par 72 course. Play to Full PGA Rules and learn the game or improve your handicap at home.

Cassette game £7.50p

ASSEMBLER

Help yourself to learn how to write, read and copy your own machine code programs. Some knowledge of machine code is preferable to maximise the use of this tape.

Cassette £6.95p



LIFETIME REPLACEMENT GUARANTEE

(to order just complete the coupon and mail it to us with your remittance)

| | | | |
|---------|-----------|-------|--------------------------|
| Name | Flight | £9.95 | <input type="checkbox"/> |
| Address | Golf | £7.50 | <input type="checkbox"/> |
| | Yantzee | £7.50 | <input type="checkbox"/> |
| | Assembler | £6.95 | <input type="checkbox"/> |

Any combination of programs available on Disk £2 extra

ANFER PRODUCTIONS 14 The Owl Breaghmore Home CUMRHO

Educational Software

LCL

BRAINTEASERS
FOR THE
COMMODORE 64



PET
Commodore 64
Unexpanded VIC
ZX Spectrum
ZX81
BBC Micro
Apple
All software for the above computers

MICRO MATHS 24 program revision or self tuition course in O-Level £24.00 (cassette)

ANIMATED ARITHMETIC Teaches using moving colour pictures (not words). Ages 3-8. £8.50 (disc £7.50).

MASTER MATHS (Apple, PET and CBM64 only). 80 program O-Level course or teacher's aid. Amazing graphics. £30

... the programming standard is high. The programs are robust

THESE EDUCATIONAL SUPPLIES

BRAINTEASERS (CBM64, BBC, ELECTRON) Book of programs to puzzle and amuse. £9.95 "you'll like this..." ELECTRON 102

IMMEDIATE DESPATCH

Vic and 64 Micro Maths and **CBM64 Micro Maths**. Phone or send orders or requests for free catalogue (300 programs) to

LCL
26 Avondale Ave
Staines, Middx.
Tel: 0784 58771

World leaders in Maths educational software (distributed in 24 countries)

GENEROUS TRADE DISCOUNTS



Tape Index

by Richard Harper

A useful utility from Richard Harper which allows you to SAVE up to nine programs on to a C60 cassette tape and - more importantly - to find them again, quickly. It does this by using the Vic's internal clock to time a fast-forward wind on the cassette deck, and will switch off the motor automatically when the correct position has been resumed.

The program should be **SAVED** at the start of each tape and can then be **LOADED** and **RUN** each time the cassette is used.

Neither the well-displayed prompts nor Richard's accompanying instructions tell us how to find the right place to **SAVE** each subsequent program, and that would be a useful module to add. We ran the program and asked it to FF to the beginning of the first program. Then, instead of pressing **PLAY** as instructed, we pressed **RUN/STOP** and **RESTORE** to stop the program. **LOADED** the appropriate new program into memory and then **SAVED** it on the already wound-on cassette - a rather laborious procedure which we were sure could be done more elegantly under program control.

The timing is controlled by the values set for **L(X)** in lines 1 to 9 at the beginning. The values in the **LISTING** will format a C60 tape to take nine programs of approximately 8K maximum length. They could be changed to allow for longer or shorter programs.

The index to program names should be written into the **DATA** statements at the end of the listing. Since no significant change is made to the program length, this can be done as each program is **SAVED**.

```

1 L(1)= 150
2 L(2)= 924
3 L(3)= 1643
4 L(4)= 2310
5 L(5)= 2930
6 L(6)= 3505
7 L(7)= 4039
8 L(8)= 4535
9 L(9)= 4995
50 S=7680: IFPEEK(44)=18THENS=4096
60 POKE 36670,15: POKE 36879,22
70 MS="[HOM]": FORA=1TO17: MS=MS+"[CUD]": NEXT
80 SI="[CUP][CUR]"
90 PRINT "[CLR][REO][CUD][CUR]INDEX": PRINT "#####"
100 PRINT "[BLK][CUD]PROGRAMSONTHISTAPE[CUD]"
110 FORA=1TO9: READPS: PRINT A, PS: NEXT
120 PRINT MS"[BLU]SELECTIT09": POKE 198,0
130 GETAS: IFVAL(AS)<1THEN130
140 L=VAL(AS): RESTORE: FORA=1TO1: READPS: NEXT:
150 PRINT MS"[ENL][CUD][CUD]"$PS$"SELECTED": POKE 5+110+22*L,42
160 GOSUB500: IF(PEEK(37151)AND64)=0THENGOSUB500
170 PRINT MS"[BLU]PRESSED/FFDONTAPE": WAIT37151,64,64: POKE 198,0
180 PRINT MS"[REO]PRESS[RVS][RVO]TOSEARCH": GETAS: IEAS=""THEN180
190 IFVAL(AS)>0THENPOKE 5+110+22*L,32: GOTO140
200 IFAS<"S"THEN180
210 GOSUB600: PRINT MS"[REO]SEARCHING"
220 IFVAL(AS)>0THENPRINT "[HOM][BLK]"$L(1)-T$"[CUL]": GOTO220
230 PRINT "[HOM]D": GOSUB500: GOSUBR50
240 PRINT MS"[CUD][CUD][CUD][CUD]LCAD"
260 POKE 198,4
270 POKE 631,145: POKE 632,145: POKE 633,145: POKE 634,13
280 END
500 POKE 37148,PEEK(3748)AND16: RETURN
600 POKE 37148,PEEK(37148)OR15: TI=TI: RETURN
700 FOR A=1TO10: POKE36875,201:
   POKE36876,200: NEXT: POKE36875,0:
   POKE36876,0: RETURN
800 PRINTMS"[REO][RVS] PRESS STOP ON
   TAPE ": GOSUB700: WAIT37151,64.
   RETURN
900 DATAPROGRAM ONE
910 DATAPROGRAM TWO
920 DATAPROGRAM THREE
930 DATAPROGRAM FOUR
940 DATAPROGRAM FIVE
950 DATAPROGRAM SIX
960 DATAPROGRAM SEVEN
970 DATAPROGRAM EIGHT
980 DATAPROGRAM NINE

```



VICTORY

SHRINK

by Ian Grousey

This handy little program will shrink your Basic program by removing all spaces and all REM statements. It takes up to 255 bytes at the top of memory.

To use it, type SYS7424. To destroy the program and reclaim the 255 bytes, type POKE56,30:CLR.

It will work only on an unexpanded or a 3K expanded Vic.

It is advisable to SAVE the program before RUNNING it, as one error in the machine-code data will probably cause the Vic to crash.

SHRINK originally appeared in Ian's book Vic-20 Mindstretchers.



```

5 REM *** SHRINK ***
10 POKE56,29:CLR:FORI=7424TO7646 READJ:POKE
  1,J:NEXT
1000 DATA165,43,133,193,165,44,133,194,160,0,
      152,24,101,193,133,193
1010 DATA144,2,230,194,160,0,177,193,208,33,2
      00,177,193,208,28,32
1020 DATA51,197,169,67,141,119,2,169,76,141,1
      20,2,169,82,141,121
1030 DATA2,169,13,141,122,2,169,4,133,193,96,
      32,51,197,169,0
1040 DATA133,0,160,4,177,193,201,143,208,42,1
      60,0,177,193,133,172
1050 DATA200,177,193,133,173,160,0,177,172,13
      3,174,200,177,172,133,175
1060 DATA160,0,32,170,29,177,193,197,174,200,
      245,200,177,193,197,175
1070 DATA208,238,240,160,200,177,193,208,3,20
      0,208,142,201,34,208,6
1080 DATA165,0,73,255,133,0,166,0,208,234,201
      ,32,208,6,32,170
1090 DATA29,24,144,225,201,143,208,220,136,15
      2,170,177,193,240,7,169
1100 DATA32,145,193,200,208,245,130,168,208,2
      03,198,45,165,45,201,255
1110 DATA208,2,198,46,165,194,133,2,152,170,2
      4,101,193,133,1,144
1120 DATA2,230,2,160,1,177,1,136,145,1,230,1
      208,2,230,2
1130 DATA165,1,197,45,208,237,165,2,197,46,20
      8,231,138,168,96
      READY.
  
```

CALLING ALL VIC 20™ OWNERS

WE WANT YOUR NAME ON OUR MAILING LIST
SO FOR JUST £5.00 WE WILL SEND YOU:

- 1 A superb machine language Vic 20 'KONG' Type Game that runs on any Vic 20 even unexpanded but which is so sophisticated you'll be amazed how we crammed it all into 3.5K (This is one of our Top Games Programs as we want to take this opportunity to prove to you how good our programs are)

NORMAL VALUE £7.95

- 2 A voucher for £4.00 off your next purchase from us.
- 3 Our newsletter on all the exciting Vic 20 programs from New Zealand where we produce Software even better than we do Lamb

**YOU PAY ONLY £5.00 AND THAT
INCLUDES AIRMAIL POSTAGE
(REAL STAMPS) FROM N.Z.
MONEY BACK GUARANTEE.**

VIC 20 is a trademark of Commodore Electronics Ltd

RETURN PROMPTLY IF NOT SATISFIED FOR FULL REFUND

NAME

ADDRESS

I ENCLOSE MONEY ORDER/POSTAL NOTE FOR £5.00
Charge my VISA MASTER CHARGE DINERS AMERICAN
EXPRESS Delete as applicable

No

Expiry Date

Signature

POST TO KIW! COMPUTER ACCESSORIES LTD
P.O. BOX 31 274 AUCKLAND NEW ZEALAND

64-STATPOWER STATISTICS PACKAGE

Now available for the Commodore 64, a most sophisticated statistical package. With the aid of 64-STATPOWER you can become a statistics expert in a matter of hours. Ideal for forecasting, business, home use, schools, students, research workers, hobbyists, marketing, sales, administration, scientists.

The possible uses of 64-STATPOWER are limited only by your own imagination. Comprehensive manual (with numerous worked examples) guides the novice user through the use of the various statistical techniques - invaluable to students of statistics. In addition, the programs themselves are extremely user-friendly.

64-STATPOWER has numerous advanced features not to be found on other much more expensive statistical packages. Contents include ascending data sort, means (arithmetic, geometric, harmonic, quadratic), median, quartiles, semi IQ range, variance, S.D., mean (absolute) deviation, max and min values, range, measures of skewness & kurtosis, deseasonalisation of data (weekly, monthly, quarterly), long-term trend estimation, moving averages (user-defined length), linear and constant growth rate trend estimation, chi-square test (one-way classification & contingency tables), sophisticated multiple regression program (options include: dummy variables, user-specified data transformations, user-defined artificial variables, data alteration), regression coefficients, standard errors, R², Durbin-Watson, von-Neumann (with calculated any mean & variance), F-statistic.

Only £14.95 sterling (including p&p)

Available on cassette or disc (£8 extra). Cheques & P.O.'s to:

SCIENTIFIC SOFTWARE

BALGLASS HOUSE, 39 MAIN STREET,

HOWTH, CO. DUBLIN, EIRE

Phone 326703. Trade enquiries welcome

Meet Slurpy

Surry has the biggest appetite in the world. He spends his day slurping fish, crabs, clams, seaweed and whatever spiciness floats Surry's way with sharp teeth and a soft touch.



SCREEN SCENE

ANTIMATTER SPLATTER

Vic 20 (Unexpanded)
Joystick or keyboard
Price, £3.95

Entirely unprovoked, a rotten black alien is casting deadly capsules earthwards. The canisters of doom roll along a series of variously coloured shifting plates, finding gaps at apertures across the width of the screen. Your cannon is consequently darting everywhere to nullify the antismatter. Each miss, by you, means fewer human survivors and one more hole in the shifting sieve overhead. It's not too long before the drizzle of antismatter has turned into a torrent - that's when you'll want to turn the repetitive sound effects down.

Bright and breezy graphics fast action, good use of 3 KE. Not as all bad.

LS

Bubble Bus

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |



CATCH A TROOPA

Vic-20 (Unexpanded)
Joystick only
Price £7.50

There are several 'catching' games on the market. In this example you are trying to collect paratroopers (they're bailing out from a helicopter) in your rowing boat before they hit the water. Of course they don't fall in straight lines - gusty winds interfere. And waiting below is a hungry shark ready to open his jaws. Once in the drink, a soldier can still be saved from the ravenous fish if you are quick and accu-



rate enough in casting onboard your rope ladder.

Not a blockbuster, but the graphics are fair enough and so are the sound effects. All in all more than presentable and well worth considering if the scenario appeals to you.

LS

Abrasco

| | |
|------------------|-----|
| Presentation: | ■■■ |
| Skill level: | ■■■ |
| Interest: | ■■■ |
| Value for money: | ■■■ |

CHOCABLOC

Vic 20 (+8K)
Keyboard or Joystick
Price £5.50

In my humble opinion this program is jolly spiffing on three counts: its actual concept, the graphics (loved the meemies), and the sound. Possibly described as a thinking man's (sorry, person's) Pacman, with a maze that is movable by you and munched at by the meemies.

The ice-blocks, which constitute the maze's fabric, can be pushed to crush the 'Chocbeez', your mean opponents. Choc eggs are hatching in space while you are listening to real cool music played on the organ. Of course it's best if you can eliminate the enemies before they hatch. At the same time as avoiding the still active enemy you are expected to align three Choc-bars

sequestered amongst the ice-store for a bonus score. So there's three tasks to perform more or less simultaneously.

The multi-colour graphics give an attractive display overall on a vertically stretched black screen, allowing for full instrumentation at the foot. The smart instructions are exemplary; even the cassette illustration depicts what actually happens! A plausible, sly, misanthropic, original scenario and a very playful helping of fun which should appeal to all devotees of arcade games.

Progressively more difficult screens, of course, with a change of tone for the meemies and a high-score table. But beware - it's a very challenging opponent.

Well done Paramount: more power to your elbow!

LS

Paramount

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |



COUNTDOWN

Vic 20 (+8K or +16K - two versions)
Keyboard or Joystick
Price £5.50

An aptly-named opus from Paramount. In effect you have to

guide our hero through three different mazes with sufficient electricity to diffuse a time-bomb. In the first you will need to collect keys to pass through the barred gates, picking up points in the form of gold blocks on the way. Of course there are hazards in the shape of sentry posts, which fire bullets and intermittent electric arcs.

Having negotiated the brickwork halls and reached the portal at the top of the screen you drop into a verdant jungle - another key to collect, larvae to climb, falling coconuts and various plants to avoid. Optically attractive, but with no time to linger, for you still have to negotiate the dark sewers! Still collecting treasure, four more larvae have to be acquired to diffuse the bomb. Apart from your clock ticking away, hanging tendrils pose a problem - but you know you will succeed (well, perhaps next time round).

I have not seen a game quite like this altogether original and most compelling. Colourful, certainly though with no surprises in the score. On-screen instructions are provided if needed for novices. With its choice of three different time limits and Hall of Fame too this is altogether a well presented program.

LS

Paramount

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |

EXTERMINATOR

Vic 20 (Unexpanded)
Joystick or keyboard
Price, £3.95

Another scion of Centepede, grafted on to 3.5K to produce a viable new variety. A cyan snake (alternatively worm or centepede, whatever grabs you) squirms between the yellow cacti along with an army of motley would-be marauders. An agent, which could have a scorpion more intelligence, hounds and distracts your rapid repeater gun which by now should be swatting harpoc amongst the desert population.

The background changes colour after a successful round of exterminating thus adding a touch of diversity. This action is adequately backed up by the sound, with no gratuitous audio enhancements apart from an opening fanfare.

Overall a decent rendering of a favourite game - competent graphics with compatible sound

James

SCREEN SCENE

and plenty to shoot at! Liked it. **LS**
Bubble Bus

Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐

FLY SNATCHER
Vic-20 (Unexpanded)
Joystick or Keyboard
Price £7.50

Being a spider it is your wont to scout the bushes for juicy flies. These are thoughtfully (if randomly) provided by our friendly Vic. A ravenous weasel pursues you with rather greater powers of locomotion than is at your disposal, recalling your tuition in ergonomics you mop up the flies using a tactical route to avoid interception. Success leads to another helping of flies power-driven into position by uncompromising sounds. It's even worth being caught, as eventually you will be as the pace hot up you can watch the weasel chomping away at your own body.

I should like to see an expanded screen version, also a more sophisticated variant for the 54. There is obviously room for the player to develop expertise and enhanced graphics would be beneficial. **LS**
Abrasco

Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐



JOGGER
Vic 20 (Any)
Joystick only
Price £5.50

You've guessed it, the evergreen Proper in the guise of the fun-

figure of the eighties. In your quest to reach the other side, the usual hazards, (common sense with 3 SK) have to be avoided. Multi-colour mode is employed with much use of orange, giving an attractive display; but of course there isn't much time to admire the view.

A bonus 'dash' is the only distinction between crocs and logs; otherwise the graphics are fine. Speaking of crocs, their jaws will occasionally bar access to your homing bay; c'est la Vie. While you are trying to cope with the accelerating pace, background music is provided with no less than three recognisable ditties - the programmer must be a musician.

A pre-nurses briefing is included on the insert, but we should know Proper by now.

For the sake of critical appraisal, I have docked a point in the value-for-money stakes as only one copy is provided. The very approachable Paramount does however assure me that every single tape is tested before despatch.

My advice? Well, you might prefer to do your jogging in front of the TV in future. **LS**
Paramount

Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐

METER MANIA
Vic-20 (Unexpanded)
Joystick or Keyboard
Price £7.50

I was utterly nonplussed by the graphic effects on this game, the like of which I have never witnessed on a Vic before. Eventually it dawned on me the program appeared to be utilizing two screens alternating very rapidly to give a spin-like effect (some readers will doubtless correct me). Anyway, it has to be seen to be believed.

The game itself is after the style of the celebrated Pacman, with traffic wardens (nice people really - back in five minutes) acting as the



naïveté and you collecting coins to feed the meter - against the clock, naturally. You may find temporary refuge in your parked car within the maze of streets and houses.

Altogether a pleasing game with the advantage of selectable screen and border colours bravo, Abrasco. **LS**

ABRASCO
Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐

VIXPLODE
Vic-20 (Unexpanded)
Keyboard only
Price \$8.50

Great to see a new board game designed especially for our magic micro; there is a dearth of 'serious' games in the plethora of arcade extravaganzas. Vaguely reminiscent of Othello, but definitely original and to be applauded as such: after digesting the helpful on screen introductory crash course, you are presented with a disk matrix in which each square can have two, three or four adjacent neighbours by incrementing the value of his strategically-placed counters the

player gets to capture adjacent squares when the counter matches the total needed. Of course the computer is doing the tedious thing - life is never easy. Chain reactions occur, which adds to the fascination of this brain teaser. The blurb states that it is difficult to beat at Level Four - you'd better believe it!

A remark about the value rating. You're not getting screens full of hires graphics, but the author is entitled to a fair return for his innovation. It deserves to be in everyone's collection. **LS**

ABRASCO
Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐

THE GOLDEN APPLES OF ZEUS
Vic-20 (+SK)
Keyboard only
Price £4.95

This text adventure is rated by Romik as suitable for a beginner and the program has an excellent set of instructions on playing adventures which you read on screen. Romik's adventure cassettes have an 'artist's impression on the cover just to set the scene. Has save-game option. Could do with a bit more scenario, but at that price maybe you shouldn't ask for much. **JDC**

ROMIK SOFTWARE
Presentation: ☐ ☐ ☐ ☐
Skill level: ☐ ☐ ☐ ☐
Interest: ☐ ☐ ☐ ☐
Value for money: ☐ ☐ ☐ ☐

ROMIK SOFTWARE
THE GOLDEN APPLES OF ZEUS

A three-headed dog turns your way.

AN ARTIST'S IMPRESSION OF ONE OF THE ADVENTURES OF ROMIK

An analogue clock in Simons' Basic

by Albert van Aardt

C64 CLOCK



```

10 INPUT "TIME IN 24 HRS CLOCK HHMMSS";TI$
20 TIME$=0:1
25 TIME$=0:0,"C64",1,4,8
26 TIME$=200:0,"CLOCK",1,4,8
30 XM=160:YM=100:R=90
40 TIME$=XM,YM,1
50 TIME$=XM,YM,R,1
60 R=90
70 TIME$=XM,YM,R,1
80 TIME$=XM,15,1
90 RR=180/PI
100 CH=0:R=70:FOR D=30TO 360 STEP 30
110 A=150+R*COS((270+D)/RR):B=ABS(-YM+R*SIN((270+D)/RR))
120 CH=CH+1:CH$=" "+STR$(CH)
130 TIME$=A,B,CH$,1,1,8
140 NEXT D
150 S$=RIGHT$(TI$,2):S=VAL(S$)
160 M$=MID$(TI$,3,2):M=VAL(M$)
170 H$=LEFT$(TI$,2):H=VAL(H$)
180 IFM>30THENH=H+1
190 IFH>12THENH=H-12
200 RS=60:RM=45:RH=35
210 TIME$=XM,YM,(6*S),RS,RS,1
220 TIME$=XM,YM,(6*M),RM,RM,1
230 TIME$=XM,YM,(30*H),RH,RH,1
240 IF OTS=TI$THEN220
250 OTS=TI$
260 TIME$=XM,YM,(6*S),RS,RS,0
270 S$=RIGHT$(TI$,2):S=VAL(S$)
280 TIME$=XM,YM,(6*S),RS,RS,1
290 IF S<0THEN240
300 TIME$=XM,YM,(6*M),RM,RM,0
310 M$=MID$(TI$,3,2):M=VAL(M$)
320 TIME$=XM,YM,(6*M),RM,RM,1
330 IF M<0THEN240
340 TIME$=XM,YM,(30*H),RH,RH,0
350 H$=LEFT$(TI$,2):H=VAL(H$)
360 IFM>30THENH=H+1:DS=DS+1
375 IFH>12THENH=H-12
380 TIME$=XM,YM,(30*H),RH,RH,1
390 GOTO240

```

There are very few Simons' Basic programs around to show off the power of this enhancement to Basic.

Here is a little one I wrote to brag a bit to my brother-in-law. He subsequently bought Simons' Basic, & maybe I should get a commission. I didn't use the structured code that Simons' Basic provides, because I felt it would be better to keep the new commands to a minimum. All the Simons' Basic commands are in reverse print, and if you can see there are not too many changes.

A few things to note about the program, for converting to other machines:

- The time variable TI\$ is used in the clock.
- Lines 11 to 130 draw the clock face, put in the numbers, to 1, and draw the hands on the clock.
- The variable OTS is used to check TI\$ and see if more than a second has passed. If so the program draws a new second hand, updates the minute and hour hands if necessary, and checks OTS again.

It could play around a bit with screen colours, add a time, maybe add an alarm, date and calendar. The program is, in, very basic, and so on.

THE 64 SOFTWARE CENTRE

26 Red Lion Square, London WC1R 4RL

Business accounts

| | |
|-----------------------------|--------|
| Sales Ledger (Anagram) d | 75.00 |
| Purchase Ledger (Anagram) d | 75.00 |
| Sales Ledger (Ramtop) t | 14.50 |
| Purchase Ledger (Ramtop) t | 14.50 |
| Cashbook (Microsimplex) d | 172.50 |
| Inventory 64 (MMS) d | 29.95 |

Home accounts

| | |
|--------------------------------|-------|
| Bank Manager (Mr. Chip) t | 7.50 |
| Budgeteer 64 (Adamsoft) t | 8.95 |
| Checkbook Manager (Adamsoft) d | 14.95 |
| Home Office (Audiogenic) t | 14.95 |

Database systems

| | |
|----------------------------|--------|
| Diary 64 (Handic) c | 29.95 |
| Maggie 64 (Audiogenic) d | 99.95 |
| Mailpro 64 (Kobra) d | 79.35 |
| Oracle 64 (Kobra) d | 113.95 |
| Practifile 64 (MMS) d | 44.50 |
| Simply File 64 (Simple) d | 60.00 |
| Superbase 64 (Precision) d | 99.95 |
| Vizaster 64 (Viza) d | 99.95 |
| Printer cable for above | 20.70 |

Spreadsheets

| | |
|---------------------------|-------|
| Busicalc (Supersoft) d | 47.18 |
| Busicalc (Supersoft) t | 44.85 |
| Busicalc 2 (Supersoft) d | 81.65 |
| Calcreult Adv. (Handic) d | 99.00 |
| Easy Calcreult (Handic) d | 49.95 |
| Multiplan 64 (Kobra) d | 99.95 |
| Practicalc 64 (MMS) d | 44.50 |
| Practicalc 64 (MMS) t | 39.95 |

Programmers' Aids & Utilities

| | |
|--------------------------------|-------|
| Arrow (Supersoft) c | 44.65 |
| Assembler (Interceptor) t | 7.00 |
| Chartpak 64 (Adamsoft) d | 24.95 |
| Forth 64 (Audiogenic) c | 29.95 |
| Graphics Designer (Adamsoft) d | 19.95 |
| Graphix 64 (Supersoft) t | 11.90 |
| Master 64 (Supersoft) d | 71.30 |
| Mikro Assembler (Supersoft) d | 99.80 |
| Monitor (Audiogenic) c | 29.95 |
| Pal 64 (Kobra) d | 79.35 |
| Printlink 64 (Supersoft) c | 32.20 |
| Quickchart 64 (Adamsoft) t | 5.95 |
| Screen Graphics (Adamsoft) d | 14.95 |
| Sprite Aid (Adamsoft) t | 5.95 |
| Stat 64 (Handic) c | 29.95 |
| Superdisk Utility (Adamsoft) d | 12.50 |
| Synthy 64 (Adamsoft) d | 14.95 |
| Ultrabasic 64 (Adamsoft) d | 24.95 |
| Victrac 64 (Supersoft) c | 56.35 |
| The Tool (Audiogenic) c | 49.95 |
| 64 Doctor (MMS) d | 18.95 |

Word Processors

| | |
|----------------------------|-------|
| Paperclip 64 (Kobra) d | 98.90 |
| Simply Write 64 (Simple) d | 40.00 |
| Simply Write 64 (Simple) t | 38.00 |
| Vizawrite 64 (Viza) d | 79.95 |
| Vizawrite 64 (Viza) c | 59.95 |
| Vizaspell 64 (Viza) d | 59.95 |

Educational

| | |
|-----------------------------|------|
| Mathematics 1 (Commodore) t | 9.99 |
| Mathematics 2 (Commodore) t | 9.99 |
| Physice (Commodore) t | 9.99 |
| Biology (Commodore) t | 9.99 |
| Chemistry (Commodore) t | 9.99 |
| Geography (Commodore) t | 9.99 |
| History (Commodore) t | 9.99 |
| English (Commodore) t | 9.99 |

d=disk t=tape c=cartridge

Games

Over 140 different games by

Adamsoft
 Alligata
 Anger Productions
 Anirog
 Audiogenic
 Bridgemaster
 Commodore
 DK Tronics
 Galactic
 Games Machine
 Imagine
 Interceptor
 Llamasoft
 Melbourne House
 Mr. Chip
 Mogul
 Peaksoft
 Postern
 PSS
 Rabbit
 Ronuk
 Supersoft
 Terminal
 Voyager

ALL IN STOCK NOW

Immediate despatch
 Full price list on request

Cheque or P.O. - Credit Cards: Access, Visa
 Callers welcome (11am - 6pm)
 Tel: 01-242 7189

Jargon generator for the 64

by Fred Reid



Be the savvy of politicians, merchant bankers and gas fitters... the Jargon Generator will help unstick your tongue in times of stress, apply successfully for the jobs well above your station, and give the old boys down the pub something to get their laughing gear around.

The generator works by randomly selecting one 'phrase bit' from each of four groups - beginnings, ends, and middle bits. The completely modular construction ensures total flexibility, in that you are free to substitute your own phraseology in place of that contained in the data statements. Be warned though, the English language is tricky enough at the best of times!

The jargon generator draws this wealth of nonsense from four groups of ten parts, so 40,000 different phrases are possible. The DATA statements in lines 30 to 410 contain the phrases, the random selector is located in lines 550 to 960. The rest of the program is concerned with assembling the strings and presenting them neatly on the screen.

```

5  F0R53280,2:F0R53281,7:PRINT"[CLR]" [GRN]*
10 DIMJ5(10,4)
20 DATAIN PARTICULAR
30 DATAON THE OTHER HAND
40 DATAHOWEVER
50 DATASIMILARLY
60 DATAIN A REAL TIME ENVIRONMENT
70 DATAIN THIS CONNECTION
80 DATAAS OF NOW
90 DATAFOR EXAMPLE
100 DATATNUS
110 DATAAS THE "STATE OF THE ART" IMPLIES
120 DATAA LARGE PORTION OF INTERFACE COORDINATION COMMUNICATION
130 DATATNE CONCEPT OF ELECTRON MOBILITY
140 DATATNE CHARACTERIZATION OF SPECIFIC CRITERIA
150 DATATNE WORST CASE LOAD SITUATION
160 DATA THE FULLY INTEGRATED TEST PROGRAM
170 DATATNE INCORPORATION OF SERIAL REQUIREMENTS
180 DATAANY ASSOCIATED PERIPHERAL DEVICE
190 DATAA CONSTANT DATA PATH
200 DATAAN INDEPENDENT FUNCTIONAL PRINCIPLE
210 DATAA PRIMARY INTERRELATIONSHIP BETWEEN SYSTEM AND SUBSYSTEM TECHNIQUE
220 DATATMUST UTILISE AND BE FUNCTIONALLY INTERWOVEN WITH
230 DATATMAXIMISES THE PROBABILITY OF PROJECT SUCCESS USING
240 DATAADS SPECIFIC PERFORMANCE LIMITS TO
250 DATANECESitates THAT URGENT CONSIDERATION BE AFFRORD TO ARRIVE AT
260 DATAREQUIRES CONSIDERABLE SYSTEMS ANALYSIS TO ARRIVE AT
270 DATATIS FURTHER COMPLICATED WHEN TAKING INTO ACCOUNT
280 DATAPRESENTS EXTREMELY INTERESTING CHALLENGES TO
290 DATATCOGNISES THE IMPORTANCE OF
300 DATAEFFECTS A SIGNIFICANT IMPROVEMENT IN THE PERFORMANCE FACTOR OF
310 DATAADS OVER-RIDING PERFORMANCE CONSTRAINTS TO
320 DATATHE SOPHISTICATED HARDWARE.
330 DATATNE ANTICIPATED FOURTH GENERATION EQUIPMENT.
340 DATATNE SUBSYSTEM COMPATIBILITY RATIO.
350 DATATNE STRUCTURAL DESIGN CONCERNS.
360 DATATNE PRELIMINARY QUALIFICATION LIMIT.
370 DATATNE EVOLUTION OF SPECIFICATIONS OVER A GIVEN PERIOD OF TIME.
380 DATATNE PHILOSOPHY OF COMPATIBILITY AND STANDARDISATION.
390 DATATNE GREATER FIGHT-WORTHINESS CONCEPT.
400 DATAANY DISCRETE CONFIGURATION MODE.
410 DATATHEL TOTAL OFFSET DATA ERROR ACCUMULATION.
500 I=1
510 FORI=1TO10:READJ5(T,1)
520 J5(T,1)=J5(T,1)+", "NEXTT
530 FORI=2TO4:FORI=1TO10:READJ5(T,1):J5(T,1)=J5(T,1)+", "NEXTT,1
550 T1=INT(RND(T1)*10)+1
560 T2=INT(RND(T1)*10)+1
570 T3=INT(RND(T1)*10)+1
580 T4=INT(RND(T1)*10)+1
590 J5=J5(T1,1)+J5(T2,2)+J5(T3,3)+J5(T4,4)
1000 L=LEN(J5):L*=0.5=L
1010 FORP=10TO1000
1020 GOTO500:1000
1030 NEXTP
1050 PRINT"[CLR]" [5 CDN] [GRN]*
1100 FORI=1TO5=1
1110 PRINTTAB(2):S(P):PRINT:NEXTP
1120 PRINTTAB(2):RIGHT$(J5,L-L2)
1130 PRINT"[RME]" [23 CDN] [5 CH] [RED] PRESS SPACE FOR NEXT PHRASE"
1150 GSTR5:IFPS="THEN1150
1160 GOTO550
2000 IPRID(J5,P,1)*="TRNS$(5)=MID$(J5,(L+1),P-L):GOTO2020
2010 P=P-1:GOTO2000
2020 LJ=P-B+1:RETURN

```

HEALTHCARE FOR YOUR HARDWARE

When your Commodore 64 seems distinctly unwell it's hard to know what to do.

Which is why you need 64 Doctor.

This special program will find the fault by a series of short diagnostic tests. And tell you exactly where the problem lies.

Included are tests for RAM, keyboard, disc-



drive, joysticks, datacassette, printer, audio and video displays.

So as well as saving you pounds in having someone check through the whole system for a fault, 64 Doctor will give you peace of mind.

You can give your system a check-up by visiting any good computer store including selected branches of Laskys, W. H. Smith and Boots.

64 Doctor: Tape £17.95 inc. VAT Disc £19.95 inc. VAT

 **PRACTICORP**

Practicorp, Goddard Road, Whitehouse Industrial Estate, Ipswich IP1 5NP (0471 64272)



FREE with your Action Computer Supplies Catalogue.

- /// Master distributors for Sony 3 1/2" Micro Floppydisk
- /// Master distributors for Dysan diskettes
- /// ACCO computer system furniture
- /// Telephones manned 24 hours a day
- /// 1000 products including ribbons, print wheels, continuous stationery, labels, binders and accessories

Return the coupon to receive your catalogue

ACTION
COMPUTER SUPPLIES

Action Computer Supplies
6 Abercorn Trading Estate
Manor Farm Road, Alperton
Wembley, Middlesex HA9 1WL

01-903 3921

Please send me your catalogue PLUS my £10 purchase voucher.

NAME

COMPANY

ADDRESS

POST CODE

TELEPHONE NO

SYSTEM USED

Action Computer Supplies, FREEPOST Wembley, Middx HA9 1WL



VISA

PLOT and UNPLOT

by Harry O'Rourke
Irish Amateur Computer Club

These routines will expand your Vic's potential to extra heights: the absence of SET/RESET or PLOT/UNPLOT on the Vic is annoying, but this program simulates these commands and is almost as fast as the ZX81.

Any of the 16 colours may be specified, but with limitations. The first eight colours can be used, but only two colours per square (ie screen colour and character). Only one of the upper eight colours may be used at a time. If this colour is altered, all points plotted in that colour will be changed to the new colour. It is possible to draw a graph on screen and display it in any of 16 colours.

Resolution is limited to 44 x 48. Colour resolution is 22 x 23. Coordinates 0,0 are in the top left corner; but if the alternative line 10000 is used instead of line 10000, position 0,0 is in the centre of the screen.

```

10 DIM S(15), T(255)
15 FOR X = 0 TO 15: READS(X): T(S(X)) = X:NEXT
20 SC = PEEK(648)*256: V = 36876
25 C = 37888+4*(PEEK(36860)AND 128)-SC
30 DATA 32, 128, 123, 87, 124, 226, 255, 236, 106
35 DATA 127, 99, 252, 225, 201, 254, 160

10000X = INT (X): Y = INT (Y): S = X/2 + Y * 11 + SC
10010XX = (2+(X AND 1)*2+(-Y AND 1)*2)
10020H Z = 1 THEN XX = S(T(PEEK(S))) OR XX
10030IF Z = 0 THEN XX = S(T(PEEK(S))) AND 15 - XX
10040IF U = 7 POKE V,PEEK(V) AND 15 OR (U * 16)
10050POKE C + 8, U: POKE S, XX
10060RETURN

```

Line 10000 below is the alternative for 0,0 in the centre of the screen.

```

10000X = INT (X): Y = INT(Y). S = 283 + X/2 - Y * 11 + SC

```

The variables used are X for the horizontal dimension, Y for vertical, U for the colour number and Z for the operation - Z=1 for PLOT, Z=0 for UNPLOT.

Alpha Sort

by C Peacock

This alphabetical sorting program is an example of a Bubble sort, the most common method used. It can sort up to 800 words into alphabetical order.

Lines 70 to 120 are for the input of data into the variable AS. Line 190 is the line where the comparison is made; note that the < sign is used to avoid an infinite loop if two items of the data are the same. Lines 170 to 190 swap the words around if they are not in order; note the use of Xs to make sure no data is lost. Line 200 sets C=1 if swapping has occurred.

Line 220 starts the process again unless no swapping has taken place in the last loop.

```

10 REM ***ALPHABETIC SORT***
20 REM *** UP TO 800 WORDS***
30 REM ****COLIN PEACOCK****
40 DIMAS(800)
50 PRINT"(CLR) ALPHABETIC SORT"
60 PRINT"(CUD) TYPE IN UP TO 800 WORDS END WITH 999."
70 I=1
80 INPUTA(I)
90 IF A(I) < "999" THEN N=1-1: GOTO 140
100 I=I+1
110 IF I=801 THEN PRINT"? TOO MANY WORDS":END
120 GOTO 60
140 C=0
150 FOR I=1 TO N-1
160 IF A(I) < A(I+1) THEN Z=10
170 X=A(I)
180 A(I)=A(I+1)
190 A(I+1)=X
200 C=1
210 NEXT I
220 IF C=1 THEN I=140
230 PRINT"(CLR) THE "N" WORDS IN"
240 PRINT"ORDER ARE:"
250 FOR I=1 TO N
260 PRINTA(I)
270 NEXT I
280 PRINT"(RVS) MORE?"
290 GETM:IF M=" " THEN Z=0
300 IF M="Y" THEN CLR:RUN
310 END

```

The alterations needed for a numeric sort are listed below

```

40 DIMA(800)
50 INPUTA(I)
60 IF A(I) < 999 THEN...
160 IF A(I) < A(I+1) THEN Z=10
170 X=A(I)
180 A(I)=A(I+1)
190 A(I+1)=X
260 PRINTA(I)

```

If the < in line 160 is changed to a >, the numbers will be put into descending order.

DARE YOU TRY AND BEAT THE SYSTEM?

Ferranti

DISTRIBUTION DIVISION

PRESENTS

SYSTEM 15000

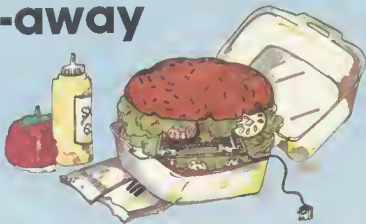
From 

**System 15000, the very first
real time investigation program
is now available
from all good software stores**

Runs on the BBC Micro, Bantam Commodore 64

Spectrum version available soon.

The take-away 64



We review Commodore's portable SX-64

Portable computers were all the rage last year. You couldn't really call yourself a computer manufacturer if you didn't have one – either the Tandy/Panasonic/Epson-style 'lap' computer with a built-in flat screen, or a 'real' computer with a conventional display, built-in disk drives, and a carrying handle.

Commodore went for the latter approach with the SX-64. Basically it's a box containing a 64, one floppy disk drive, and a five-inch display with a handle-cum-stand and a cable-connected keyboard that clips on to the front to double as a cover.

Sounds ok so far? Well, there are two ways of looking at the SX. You can consider it in isolation simply as another computer, in which case it's an expensive 64 with some extras and some omissions.

Or you can consider it as something to be used by someone – and then you'll be asking 'who', 'when', 'where' and 'why'. And to confuse the latter assessment there are a couple of bugs in the unguent. Like it costs £895. Like it has only one disk and the standard 6510 microprocessor from the 64, so it doesn't really compare too well as a business computer. Like it has joystick and cartridge ports but no cassette interface, so it doesn't look like a complete home computer system either.

And what's the SX-64? It's a 64 with a 1541 disk in a box, with a built-in screen and the electronics inside the cabinet rather than the keyboard.

Commodore has a different view: so more accurately, a number of different views. It's the "Commodore Portable SX-64 Colour Computer" says the manual, calling it the "Commodore Executive 64" elsewhere with a schizophrenic alien that as we'll see characterises the whole thing. "One of the best values in the home computer industry," it continues; but isn't something called the Executive 64 going to be more of a business computer?

Ah well, "the SX-64 is portable competing in the office, home, hotel room or at any location where mains power is available". So it's for everyone, y'see: that's what the PR agency says. But hang on, here's the brochure: "the Commodore SX-64 portable colour computer allows the businessman to truly take his work with him where he goes". It opens. So it's a business computer.

Or maybe not. Paragraph two: "if you're a busy executive keeping a diary, a scientist making notes about experiments, a salesman on a sales call, an on-site engineer, a reporter, an auditor, an accountant, or even

a hobbyist who travels, this portable system is a must". Serves to one: must be a business computer.

Ah-ha, the price list: yea, at £895 it's a business computer. So, down to business.

Inside the box

A big box containing the usual quantity of protective polystyrene embedded therein is an SX, a mains cable (no plug), a keyboard cable (18 ins of it), handbook, cut-price flock-wallpaper handbag (for cables?), and some freebie software.

The thing is basically a deep and surprisingly heavy steel box

– weighs 10.5kg, which isn't too bad; measures just over 400mm square by around 136mm (say 13x15x16ins) so for the average purchaser (whoever that is) it shouldn't scrape on the ground. Colour scheme muted elephant grey and matt black, with a few frilly bits in blue and silver.

Carry handle is a nice piece of work, thick and ribbed you get a good grip on it and it doubles as a stand – ratchet swivel with simple but effective locking mechanism on each pivot. Doesn't really raise the screen high enough for cricktree viewing, though.

Keyboard unclips from the front (spring clips hold it on, feel

Review



less than 100 per cent mighty but keyboard never slipped off while we were carrying the review model around) to reveal dinky little screen - 8in diagonal. Also there one disk drive helpfully labelled 'drive 0', one disk-drive sized gap labelled 'storage', one spring-clipped panel labelled with the C64 logo in sexy silver (opens to reveal display controls and reset button. What's a reset button, daddy?).

After the multi-cable hassles of assembling an ordinary 64 system, it's magic to get up and running by snaking two connections - mains into back, keyboard to the front via solid 26-pin plugs and usefully long,

flexible cable. The keyboard can stay attached when clipped back on for transit, but then the plug juts out a bit.

The keyboard is a remixed version of the 64's, with all 67 keys in the same layout. The keytops are smaller and the whole thing looks a lot more modern - very European, cleaner and clearer, with the keypad characters fashionably offset to the top left corner of the keys and the number keys printed with both the Control and C64 colours. 'Control' is spelt out, too, rather than being 'CTRL', so is 'Clear', but 'Insert' stays as 'Ins' for some reason. It's physically smaller than the 64 keyboard, but

in terms of getting your fingers on to the keytops there's no problem.

No 'on' light to show you that the thing's working if the screen has blown, though. At least there's one on the Shift Lock.

The disk is obviously a repackaged 1541 for 5.25in 170KB floppies, comes complete with 1541's clunk-click latch and formatting characters. No improvement on 1541 speed. The 'storage' hole is a joke: may be useful for the leads in transit, but you can't fit disks into it unless they're out of their card overcoat (not recommended); the manual won't fit either, and it's too deep for pencils and too tight for buns

(sandwiches might fit).

The display (reputedly a Sony screen) is a colour monitor - no watching Football Focus or Dallas on it. Displays the 64's 16 colours, 288 screen/border combinations, 25 40-character rows (but can scroll over 240 characters), bit-mapped for 320x200 pixels' worth of hi-res graphics. Text looks a bit dotty on it, and there's a slight but noticeable refresh flicker, but colours reproduce well, and hi-res graphics can look very crisp.

Start-up display is the Vic-style dark blue characters on white background with cyan border. The border isn't proportionally as large as on the 64 because the



Monitors compared. Left: the display on a JVC screen, identical in size to the SX64's (courtesy Teleonic Toffenham Court Road.) Right: the integral screen. Note the fuzziness around the word "gas". The game is Virgin's Falcon Patrol, of course.

screen surround chops off the edges gives the illusion of a near screen-size display area, but the sharp edge looks better anyhow.

Open the dinky little controls and there's a dinky little control for volume (yes, the SX has its own speaker - pretty good one too, considerable loudness and little distortion), brightness, contrast, colour balance and vertical hold. Plus two fine-tuning screwdriver holes for contrast and brightness, which makes up for the limited on-screen range on the knobs.

And then there's the reset button. Tiny, discreet, unexplained. On most computers there's a reset button which does the same as Run/Stop and restore followed by NEW, but this isn't one. No-one at Commodore could tell us what it's for; only effect seems to be spinning the disk. For emergency hang-ups? Surely Commodore isn't admitting that the 1841 is prone to hang?

Atop there's the cartridge slot, clean and easy insertion through small flash-firing spring-loaded doors. All the 64 cartridges we used worked ok, they look a bit weird sticking out of the top, but it's better than fiddling around the back.

Where you'll find a big fringed heat disperser below a neat strip of standard 64 sockets - two joystick ports, DIN sockets for audio/video and serial, user port, mains lead, 1.5A fuse, chunky power switch.

Obvious absentee cassette port. There's the major technical difference between the 64 and the SX. Not only have all the tape electronics and the edge connector been omitted, the Kernal's been modified to kill all

reference to it. Like the SX gives 'ILLEGAL DEVICE NUMBER' when you try to read from or write to device 1, the cassette.

Instead there's a new meaning to the instant-load method of pressing Shifted Run/Stop. It produced LOAD "":S and BUN to load and run automatically the first thing the SX finds on disk. Note that they didn't amend the Kernal enough to make the disk rather than tape the default device - try typing LOAD "FILENAME" and you'll get the cheery illegal device message, you still have to laboriously spell it out as LOAD "FILENAME".S

That kind of thing is a bit of a shame, since there has been some messing around in the Kernal - opening message promotes SX-64 BASIC V3.0 not COMMODORE BASIC V2, some tidying up to cursor handling and jumps has been done, and there's a whole new routine at 98479-98588 in what was formerly empty memory. It's only short, but we haven't yet been able to figure out what it does.

No other Kernal changes, and none to Basic. A real missed opportunity for simplified disk handling (in particular, the SX is stuck with Basic 2.0's protracted OPEN and PRINT# disk controls rather than the shorter and easier commands offered in Basic 4.0 from the 700 (if it still exists) and the 9000s.

True, there is the DOS Wedge on the TEST/DEMO disk supplied, sits on the cassette buffer, gives two-key disk directory (non-destructive) and file load. But it still has to be loaded, it could have been Kernalised. Ditto the disk copying programs supplied (one for

single-disk copying, one for twin drives). There's still no quick 'n' easy formatting.

Freebies

The TEST/DEMO also includes a 'how to use' text display (which says very little other than to name the utilities it provides) and a few SX demos (which to our mind didn't really make the most of the SX's facilities).

The other freebies to sell you on the SX are three packages and a diskful of six games. The games are so-so to good. The fruit machine has good graphics but some oddities (like you can hold a winning line, doesn't happen that way at our local) and anyhow fruit machine games are boring. The text-only mini-Adventure serves as an intro to the genre (120 rooms, 83 objects to collect, but again some inconsistencies). The 3D maze is ok, so is the 3D Patience.

Average arcade action comes as a very ordinary 2D depthcharge game, much better is a travelling gunsight plus laser cannons to zap the Imperial fighters from space (really difficult at level 8).

The games may not be great; how about the packages, worth £210 according to Commodore? Well, there's Precision's well-known Easy Script word processor now branded by Commodore. Not at all a bad WP package, with many top-notch facilities including tabs, search-and-replace/delete, mail-merge for personalising form letters. It's by no means the easiest 64 word processor to use, though, and you'll find more facilities and more friendliness from other WP

software on the 64... but then you'll pay extra for it.

Future Finance is a financial planning program producing cashflows and gross and net profitability forecasts from your input of up to 15 sales items, 15 purchase heads, and 30 accrual (expense) items. If you need more than that, you can split the model into different parts and later consolidate them. Various output report formats for different needs.

Problem? It's slow, awkward (especially on consolidations) and inflexible to use (for instance you can't edit a mistyped input you have to do the whole entry again). One of the many decent spreadsheets for the 64 will be easier and better, but then you'll pay extra again.

Anagram's Easy Stock is probably the best of the three in that it's as good as most inventory packages on the 64. Takes a while to define your stock file, but thereafter works well, book orders in and out, see stock-lows and slow movers highlighted, produces stock movement analyses (only two sales analysis codes though), do profitability assessments and stocktakes (including an override to alter stock quantity for pilferage and breakages without affecting values of sales and purchases), raise the price across the board by a percentage and so on. Several good and useful reporting options using all or part of the file, too.

Major omission: no pure exploration for manufacturers but then it's obviously aimed at retailers. Only significant complaints, then, are the thug's

assemblery (no tailoring as possible, like it won't cope with you giving selective discounts on selected lines to selected customers) and the use of lower-case letters in the display - may look nice on a big screen, but so small really for the main display

Manual labour

The SX handbook is a classic Commodore opus. Its fat spiral binding, 174 pages plus two black ones labelled 'MEMO' and the useless bound-in 'Quick Reference Card' - all printed on fat glossy paper which turns into superglue when you spill coffee on it.

Inside there's a mash-mash of reprinted and/or tightly rewritten sections from the 64 handbook and the 1541 manual. Not very well mesh-mashed, either: section access files and block mid-write on page 277. In a section called 'Getting Started?'

Much hilarity too in 'Expanding your system'. Has anyone seen a 64 IEEE interface Card in any Commodore dealers? Or the Z-80 cartridge with CP/M? Or the Speech Module? Or the Superexpander 64? Or the modem "lets you use your telephone to connect your Executive 64 to other computers and information retrieval services".

Or a Prestel link or networking on the Pet emulator? All promised in the brochure.

Is this the portable computer for you?

The fashion for portables with a 'real' display (a TV-like CRT monitor capable of showing enough characters at a time to be useful) and a 'real' keyboard (with typewriter-style keys rather than the Spectrum/PC or 'Chiclet' pushbuttons) was all started by the (largely self-styled) microcomputer industry guru Adam Osborne.

He sold a lot of Osborne 1s before he went bust. That computer was surprisingly successful technically, with a conventional eight-bit micro in this along with two floppy disk drives and a big eye-straining screen in a bulky and ugly box (personal opinion) - some people like it.

But a wasn't portable (especially if you want to develop your blonps). It wasn't complete - all you need is a printer. It had/has a proper

keyboard, a proper screen, a proper disk operating system. And the price was a really attractive - particularly as it includes a lot of free software.

Since the Osborne's launch, though, portables have come a long way. Displays are bigger and better, the virtually indestructible Sony micro-floppies are being used, 16-bit processors are now de rigueur, compatibility with the IBM PC (or more specifically with the huge amount of good-quality software available for the PC) is the norm, the styling has infinitely improved.

But who needs a portable computer, anyway? It costs money to build something that's robust enough to stand being lugged around, and there are all kinds of technical and ergonomic compromises that have to be made in manufacturing a physically compact unit. Are there that many people who need a computer to take with them whenever they leave the office or their home?

In fact it looks as though most portables for the business world aren't actually ported very much at all, they tend to sit on a desk more or less all their working

lives. Not unlike a conventional non-portable computer, in fact.

Now, there is probably a case for arguing that some business people will want to take a computer home for out-of-hours work. Travelling salesmen and suchlike use a portable for instant recording of visits and (hopefully) orders, perhaps with a phone link back to the head office computer to down-line the data collected. It's certainly useful for software developers to have a huggable computer they tend to want to work wherever they happen to be. And there's at least one computer journalist who makes a habit of sitting up people's noses by getting on the front row of press conferences clacking away at a portable computer.

What's more, there probably is also a market for a small, neat, compact and complete home computer - everything you need in one box with just one mains lead, as an alternative to the spaghetti of wiring that connects a plethora of small boxes to each other and to your TV set.

The appropriate comparison could be with those portable stereos with clip-on detachable speakers on the side of a compact unit containing amp, tuner and tape deck: you may not get as much in the way of hi-fi quality as with a component set-up, and you'll probably omit some things like a record deck. But in return you have an easy-to-use simply-connected unit that's physically small, which delivers pretty good quality and at a pretty low price.

So where does the SX-64 fit in?

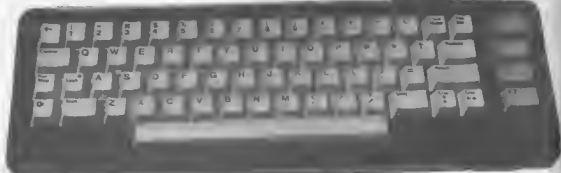
On the plus side it's quite a nice piece of design work. It looks quite good, feels solid, is heavy but fairly comfortable to carry, has no irritating reflective surfaces.

There is the video-out connection for attaching a full-size monitor, but in any case the little display is pretty legible. The small size of the characters gets in the way of comprehension only on some 'curved' letters like capital 'S'.

Key bored

Then there's the keyboard. Styling is ok, if you accept that any portable with typewriter-style keys isn't going to leave a lot of room on the actual keyboard for considerable extras





like space to rest your palm. The styling of the SX's keys (including dished keytops and slightly raked keyboard - just what ergonomists recommend) is better than the standard 64's, and their labelling (including the extra colours accessed by the CEM key) is both clear and more helpful.

On the debt side, the keyboard is much too light: a solid plate of lead in it wouldn't have added much to the overall weight, and it would have made the keyboard feel a lot more solid (a psychological consideration, maybe) while stopping it sliding around at the slightest touch (entirely practical).

And the key action is awful - far too light, far too clacky, generally imprecise. Our spacebar felt like the spring had failed at one end, so it didn't register at all if you hit the left side, hope that doesn't happen too often on other keys.

Identity crisis?

Then there's the two real problems, the things that confuse the SX's identity comprehensively: cassette and disk. Providing a diskful of games would point to a home-computer appeal... or maybe not, since the games are average at best. Commodore could have given away some much better offerings if it wanted to impress the domestic punter: how about the International Soccer cartridge?

Nor does it provide any of the facilities that home users would have found so helpful for programming - no extra sprite and sound commands on disk or cartridge, for instance.

Since tape will be the cheap and obvious home-computer

storage and program distribution method for some time to come it looks as though the SX isn't a home computer. Not for the average buyer, anyhow, even if said average hacker can stump up the necessary reads.

The business person and the software developer are the other candidates among the SX's potential market. Both need disk, and indeed there is a disk... but what a disk! It's the 1541, for a start; a temperamental little number, to say the least.

And only one drive. For serious work (notably to take back-up copies and for handling applications that require both a data file and a program disk available all the time) you really need two. You could attach another 1541 to the serial port and use it as device no. 9, but that rather removes one of the points about a complete portable system - and those 1541s are

notoriously sensitive, you can't lug them around like you can the 64.

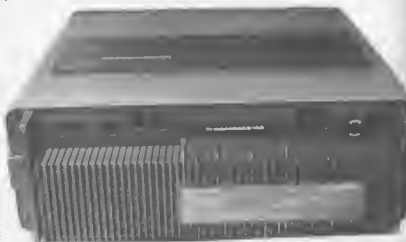
There is in theory a DX-64 too - 'SX' presumably meaning 'Single-disk Executive computer', with 'DX' being the 'Double-disk' sibling. The manual talks about it, and all the 1983 PR from Commodore suggested a twin-disk portable as the main product with the single-disk version being the all-cheapo model for the impecunious. But the DX isn't here yet, and we hear that it never will be - reportedly Commodore has found it really difficult to get two 1541-style drives into the box.

Commodore presumably sees a business market for the SX, which is why it gives away three business-orientated packages with it. Well, the word processor and the financial planner are OK... but there are probably better options available commercially.

Anagram's stock control package is a good piece of 64 software, but it's a curious choice of freebie: a file-orientated application like inventory really shows up the limitations of speed, capacity and overall flexibility that the 64-plus-1541 combo necessarily imposes. Besides, stock control isn't the most commonly required of business tasks for microcomputers; a sales ledger with VAT computation would surely have appealed to a wider range of people.

As a software developer's tool - and for magazine reviewers and programmers! - the SX-64 isn't all that bad, however. Particularly if what you need is literally a portable 64, a machine that you can take anywhere and use to develop or review software intended for the average £200 Commodore 64.

There are no 'toolkit' facilities



CHROMASONIC PERSONAL COMPUTERS

64 PROFESSIONAL SYSTEM

COMMODORE 64 COMPUTER
1541 DISK DRIVE
DAISYWHEEL PRINTER
PHILIPS GREEN SCREEN MONITOR
ALL CONNECTING CABLES
FASYSCRIPT WORD PROCESSING PROGRAM
SUPERBASE DATABASE PROGRAM
(EasyScript & Superbase linked together)
BOX OF PAPER & BOX OF DISKETTES
£350.00
P&P £20



FAEL 64 PARTIAL COMPUTER £995.00
INCLUDING FREE SOFTWARE
EASYSCRIPT + GAMES +
EASYSTOCK & EASYFINANCE
SPECIAL OFFER PRICE £795.00
P&P £20

commodore

64

- a Commodore 64 £195.95
- e 1541 disk drive £195.95
- a MPS-801 dot matrix printer £295.95
- b 1526 dot matrix printer £149.95
- c 1520 printer/plotter £195.95
- f 1701 colour monitor £38.10
- c cassette deck £10.50
- b Quickshot joystick II £14.50
- b Intro to Basic (part 1) £9.95
- c Programmers reference guide £49.50
- c Speech synthesiser £5.95
- a Microguide £98.00
- i Superbase 64 £50.00
- i Perspex £89.00
- c Calc Revell SX64 £50.00
- c Simons Basic by Commodore £89.95
- b Wordcraft 4.0 on Cartridge £39.95
- a Mon 64 £75.00
- b Sales Ledger by Anagram £75.00
- i Purchase Ledger by Anagram £14.95
- i Hobbit 64 £29.95
- b Bmdig 64 £50.35
- c Omnicalc £69.95
- b Multitran £29.75
- a Zork I II or III £35.95
- i Deadline £35.95
- b Suspended £35.95
- b Knight Simulation II £17.95
- i Robots of the Lost Tomb £17.95

commodore 64 packs

64 STARTER PACK

Commodore 64
cassette deck
Intro to Basic (Part 1)
Quickshot joystick
Game of our choice
ONLY £255.00
P&P £9

64 BEGINNERS PACK

Commodore 64
cassette deck
ONLY £229.00
P&P £8

64 BUSINESS PACK

Commodore 64
1541 disk drive
MPS-801 printer
Box of disks + box of
paper
Free EasyScript +
EasyFile + Intro to Basic
Part 1
ONLY £629
64 HOME/BUSINESS
PACK
Commodore 64
1541 disk drive
Box of 10 disks
ONLY £395.00
P&P £12

DIALOG HOME/BUSINESS PROGRAMS

DIM Database is a powerful and
versatile database system suitable
for name and address files, stock
control, letters, reminders

£24.00

- a DIM Database Mail Labels £30.00
- i DIM Mail Labels £10.00
- i Journal financial diary £14.95
- i Calendar filing system suitable for
wordbook applications £14.95
- b Calendar designed filing systems
suitable for records & photos etc £14.95
- b Invoicer Invoice & statement
generator £30.00
- b Traces II (stock keeping) £30.00

BOOKS

- i Programmers Reference Guide £9.95
- i The Working Keyboard £5.95
- i Commodore 64 Computing £5.95
- i Commodore 64 Games Book £5.95
- i Using The 64 £5.95
- i Commodore 64 Exposed £6.95
- i Mastering the Commodore 64 £7.95
- i Software 64 £5.95
- i Easy Programming for 64 £5.95
- i Commodore 64 Machine Code Master £8.95
- i Commodore 64 Adventures £5.95
- i Commodore 64 Getting the
most from it (line Dropped) £7.95
- i Commodore 64 User's Guide £11.00
- i Computer Playground £12.70
- i Commodore 64 Vtc 20 £12.70

PRINTERS Price code F

- FX80 (Tractor only) Dot matrix £259.95
- FX80T (Friction & Tractor) Dot matrix £299.95
- FX80 (Friction & pin feed) Dot matrix £389.95
- FX100 (Friction & pin feed) Dot matrix £545.95
- Daisy Step 2000 £379.95
- Juke Daisy Wheel £395.95
- BBC to Centronics cable £11.95
- 64 VTC to Centronics cable £19.95
- Software for above £7.95

MONITORS

Post code (F) except Postcode F
Turntable (D)

Commodore 1701 Colour and Sound

- Microvitec 14" Colour £195.95
- BMC 12" Green screen £247.25
- Turntable stand for BMC £119.95
- Philips Green screen £19.95
- Fidelity RGB RGBY Composite and
Sound £79.00
- £228.95

MEDIA SUPPLIES

Disks by Verbatim registered in boxes of 10
5.25 D 400K £12.95 5.25 D 800K £13.95
5.25 D 800K £24.75 5.25 D 800K £13.95
100 5.25 D 800K £13.95

Compuer paper (standard) in boxes of 2000 sheets
1/2 £13.95 1/4 £12.95 1/8 £12.95 1/16 £12.95
1/32 £12.95 1/64 £12.95 1/128 £12.95 1/256 £12.95

Dot Matrix £2.95 1/2 £2.95 1/4 £2.95 1/8 £2.95 1/16 £2.95 1/32 £2.95 1/64 £2.95 1/128 £2.95 1/256 £2.95

PRINTER RIBBON

- a JUKI £1.85
- a EPSON £5.00
- a 1515/25 £6.20
- a Daisy step £5.52
- a FX100 £9.95

Postage Codes

- a 10/15
- b 11/10
- c 12/00
- d 13/00
- e 14/00 (Seaside)
- f 15/00 (Seaside)

We guarantee all our products for 1 year, except 64 and Vtc which is
2 years. Payment may be made by Access, Barclaycard, Bankers
draft, Building Society cheque or cash. Sorry, cheques need 4 days
clearance. We reserve the right to alter prices without prior notice.

THE BEST WAY TO BUY A COMPUTER

CHROMASONIC IT.

48 Junction Road, Archway, London N19 5SD

TEL: 01-263 9493 and 9495

New shop at

238 Muswell Hill Broadway, London N10
01-883 3705





built into the 64, though, and is there a freebie disk full of those little essentials that make programming the thing a lot easier. Why not a cut-down Protonics's Aid on disk?

Maybe Commodore doesn't see a software development market. But with the portable cassette would be useful, the other deficiencies and drawbacks pale into insignificance against the fact that the SX is an ideal homework mac: the people working with 64s—the SX-64 would be ideal.

The REAL problem

But there you come up against the major problem—the price tag. At £895 the thing is not too expensive to be a home computer, but it's also too expensive to be a straight portable 64. Using your home, you can have a 64 with a 1541 about £400 (or not much more than half the SX's price you can get a decent monitor as well). freebie software isn't worth the difference.

The word is that Commodore wants so few sales that the limited production facilities in Japan for the thing won't be embarrassingly overstretched. Seen in that light, the SX 64 is probably a market research R&D exercise which will allow Commodore to get some idea what the punters want and try some packaging techniques to deliver that sometime in the future.

The SX is a neatly packaged and highly-priced 64 with a 1541 loaded with all the deficiencies implied by that and also billed with most of the virtues of the combination. But as it stands the SX-64 doesn't really look like a computer for anyone in particular.

But when the price drops to £499, it'll be a Good Buy for software writers and maybe for business users with a really tight budget when the DX appears. At £395 the business market will really open up for it when there's a faster CPU and more functions in ROM and a rewrite of the DOS and higher-capacity microfloppies or maybe a 5MB mini Winchester for less than £1,500, it'll sell a million. Shame about the keyboard.

But anyway, that's not the SX 64 that's the next generation product for which the SX 64 looks like a suck-it-and-see case.



| Underreview | Commodore SX-64 |
|-------------|--|
| Description | Portable 64 computer with integral single disk, screen, loudspeaker |
| Supplier | Commodore Business Machines |
| Address | 625 Ajax Avenue Slough Berks SL1 (via dealers) 0752 741111 |
| Telephone: | |
| Summary: | Neat, quite clever; but schizophrenic pricing and specification |
| Price: | £895 (includes three packages) |

Bookkeeping for the Cash Trader on the CBM 64

- * Purchase day book
- * Weekly takings summary
- * VAT Account (Retailer schemes A & B)
- * Trading Account
- * Profit & Loss Account
- * Balance Sheet

FREE 14 DAY TRIAL OFFER

Send us a cheque for £25.00 as a deposit and we will send you a demonstration cassette or disk, the user guide and specimen reports on 14 days trial.

If you wish to buy the live system, return the demonstration cassette or disk (keep the user guide) and a cheque for the balance of £64.70 and we will send you the live cassette or disk and our VAT invoice.

"Excellent little manual" very good for the cash trader"

Commodore User, March 84

Alternatively, if you return to us the cassette or disk, the specimen reports and the user guide in good, clean condition we shall return £20.00 to you retaining £5.00 to cover our handling charges.

Receipt by us of your cheque for the £25.00 deposit will signify your agreement with these conditions. Please state whether you require cassette or disk.

PRICE **£78.00** +VAT

QUICKCOUNT LTD

15 NEEDLE CRESCENT
LONDON NW4

01-202 5486

NEW
FOR THE CBM64

INCENTIVE

THE SPLAT
CHALLENGE

SPLAT!



NEW FOR THE CBM64

THE SPLAT CHALLENGE FOR THE COMMODORE 64

£6.50

INCENTIVE

INCENTIVE SOFTWARE 54 LONDON ST
READING RG1 4SD (0734) 581678



Dreamer or superstar... Only you can prove it

Do you have the talent and drive
to be a Rock 'n' Roll idol...

You've got a lot of energy, a bit of money and a great future. But can you stay the course, stand the heartbreaking disappointments, fraud, scandal, even arrest? Can you capture the hearts and wallets of the public and make it to the top?

How would you start? Go busking for a month or hire a manager?

OK... But do you really want to give a fat percentage to a manager? Will he look after your interests or his own?

Why not try a tour... Not enough cash? You don't even have any popularity. Better be careful, at this rate you won't even make a 'has been'.

Rock 'n' Roll is the new Commodore 64 version of the famous Spectrum game. But times change and now it's even harder to succeed in 'Showbiz'.

NOW AVAILABLE FROM YOUR MAIN
SOFTWARE RETAILER.

COMMODORE 64



MULTIPLAN – The ultimate spreadsheet

SYLK? – What's the Dif?

by Karl Dallas

For years spreadsheet users have been asking if there's life after Visicalc. Karl Dallas looks through MULTIPLAN's eight windows and finds the view is very fine indeed.

You can't squeeze a quart into a pint pot, they say – though the way software companies are exploiting the comparatively limited memory of the smaller computers in ways that would make owners of some main green with envy, I'm beginning to doubt the truth of the aphorism.

This is particularly noticeable with business software for the 64, which though it may offer the user some 38K more usable memory than is available to the humble Vic-owner, is still a comparatively small machine, compared with "proper" business computers like the 8086 or 286, which can go up to 256K of memory, though it has to be banked, of course.

Multiplan is Microsoft's enormously powerful spreadsheet program which usually runs on powerful 18-bit machines like the Sinus and Apricot, as well as the bigger Apples, and the news that it had become available for the 64, and at a price almost half of that for the other machines must have caused some raised eyebrows in software circles.

On the "you gets what you pays for" principle, many must have wondered what had been left out. The answer is, quite simply: almost nothing.

Multiplan is, without question, the spreadsheet which has answered almost all the objections which could be levelled at all others of its kind, and in fact it is so far ahead of all the others – including the great granddaddy of 'em all, Visicalc – that the busy reader can skip all of what follows and simply make a note that Multiplan is the spreadsheet to get, and any criticisms I may be able to

summon up may be put down to me picking or carping. It's rather like the car critic who objects that the new Lamborghini salbray isn't quite up to the mark!

For instance, it has particularly powerful WINDOWING facilities, making it possible to view up to eight windows from the one sheet on screen at the same time. Certain pairs (one pair at a time) can be fixed to scroll in sync with each other. This is more powerful than Calc Result, for instance, which can create two windows and split a window as well, even viewing two worksheets on screen at a time through the windows. Multiplan allows only one sheet on screen, though.

There is one catch to all this power, of course, which is due to the limitations of the hardware rather than the program.

In order to leave as much of the 64's memory for what matters – the sheet itself – Multiplan accesses the disk fairly frequently. A glance at the system disk directory (see illustration) will show you what I mean: it is divided into seven areas, of which the first 64 blocks are devoted to the "boot" program and the basic code, with over 400 other blocks of mainly sequential and relative files which are accessed as the sheet is developed.

Of these a hefty 153 blocks are devoted to really valuable

help screens, which make the superb manual almost superfluous.

This wouldn't be entirely a bad thing with a disk-drive of average speed, but the 1541 is a-o-o-o slow that each time there's an overlay, the time seems to stretch out into an eternity, even if it's just a second or so in reality.

Personally, I always try to get 6050-formatted copies of programs for this very reason, but they aren't available for Multiplan, and since the disk is uncopyable (theoretically, at least), there's no way of transferring it from one format to another, unless you're a disk "re-copying" genius.

The other thing that needs to be said, I suppose, is that it isn't a 3D spreadsheet like Calc Result (the advanced version). Only one sheet can be held in memory at a time, but there is a very sophisticated eXternal command, which allows the sheet in memory to be linked in all sorts of ways with files on disk.

There is also a "SYLK" (Symbolic Link) file format, which allows the interchange of information between Multiplan and other programs, similar to Visicalc's Data Interchange Format (DIF), but although the manual says that DIF files can be accessed via SYLK, there is no detailed description of how this can be done – presumably by stripping off the DIF headers and tail tuple and vector information from the DIF file and turning it into an ASCII sequential file.

This is a pity, since it's quite likely that Multiplan purchasers may have already had some experience of Visicalc's of, non-probably, of Calc Result, which also supports DIF – and would like to be able to access the data produced by the earlier system after an upgrade.



Installation

Multiplan comes as a single 5 1/4" disk plus a lavishly printed A5 manual in ring-binder. All in a snazzy Perspex box which folds out to become a really stable bookstand to hold the manual - or, for that matter, anything else, copy etc.

And what a manual!

Nearly 450 pages of it. 25 pages of setting up and operating instructions; 186-page guide to using Multiplan, with a detailed tutorial about the mythical Spence Ceramics company to illustrate how it works; 34-page 'Multiplan in Depth' followed by an 83-page Command Directory and a 44-page Function Directory, ten pages of explanations of the various messages and prompts that appear on the screen, plus over 30 pages of appendices explaining the intricacies of STYLE and such arcane matters as iteration, together with a really full index.

Really, this is a model of its kind!

One small problem is that the

bulk of the manual was produced for users of the Apple version, and there are slight differences in the screen displays (40 columns instead of 80 on the Apple, three-line instead of two-line menus, slight truncation of some messages and prompts). There is, however, an entirely 64-specific 'reference card' - actually a very clear and concise 16-page booklet which is easier to follow than some manuals!

Explanation of printer support could be better. The manual says it supports the VIC-1525 printer 'or any printer compatible with the VIC-1525', but when I tried to get it to drive an Olympia ESW3000 daisywheel via an Interpod I got capitals where I typed lower-case and vice versa. Anyone using an interface with code conversion (eg a Small Systems Engineering B500) could change the mode, but this should also be possible under software control from within the program, though the manual doesn't tell you how and even Microsoft couldn't tell me how to do it!

The manual assumes that if you have more than one disk drive it

must be another 1541 (which would be device 8), rather than a double-drive 4040, which, though no longer made, uses the same disk format as the 1541 and allows drive 0 to carry the program and drive 1 the data disk, which is good practice.

Though the main Multiplan program is uncopyable, the essential 'MP.SYS' can be copied on to data disks, allowing them to be run in a single drive, without frequent swapping between program and data disks.

After LOADING and RUNNING the brief loader program, the Multiplan logo comes on to the screen after about 30 seconds and the blank spreadsheet about 1 minute 30 seconds after that and you're ready to go.

Operation

Unlike Visicalc, which assumes that an entry that begins with a letter is a LABEL (text) unless preceded by +, -, or a bracket, or Calc Result, which assumes that an entry is a VALUE unless preceded by a space, Multiplan requires to be told each time

whether it's ALPHA or VALUE, either by keying the initial A or V, by pressing RETURN (since the cursor is usually on ALPHA), by TABbing the cursor through the three-line menu by use of the F1 function key or space (or back, by using INST/DEL), or by CTRL-A for an ALPHA entry.

At any time, keying 'F' will invoke a HELP screen which explains the command under the cursor in some detail. There is no facility for editing, truncating, or adding HELP screens.

As with all spreadsheets, each cell has a co-ordinate reference, used in GOTO, DELETE ROW/ COL or INSERT ROW/ COL command, and so on. Vertical and horizontal axes are both numbered, so that the third cell down in the first column is R3C1 rather than A3, which is slightly long-winded to key in compared with most other spreadsheets. The maximum number of columns in a spreadsheet is 63, the maximum number of rows is 255.

Any individual column can be given its own individual width, between three and 32 characters.



The journey of your life... or death!

Like the explorers of old, your path lies through an uncharted world. A forbidden land, ridden with Plague Pests, guarded by lethal Robo Crabs and defended by a powerful Alien fleet.

You stand alone against these evils, your only defence your trusty, fast firing laser gun and raw courage.

This is your mission, there is no turning back. For you, survival lies in victory alone.

Have you got what it takes to face this lone quest and complete your mission against all the odds?

Odyssey is an all new, fast action, machine code game. It features superb graphics, twenty one levels of play and five different screens.

NOW AVAILABLE FROM YOUR MAIN SOFTWARE RETAILER.

COMMODORE 64



Horizontal and vertical **TITLEs** can be fixed.

If **CONTINUOUS** format is defined, text that is too wide for the individual cell will continue into the next cell, if it's empty, and so on through an entire row of cells, if required.

Individual formulae or labels can be **LOCKed** and cannot then be altered. The same toggle-like command **UNLOCKs** the cell, if it needs to be altered subsequently. The **L F** sequence will **LOCK** all formulae or cells on the sheet.

The program makes no use of the 64's colour capability though it will overlay whatever screen/border/character combination has been **POKEd** into the machine before **Multiplan** is **LOADed**. It would have been useful if windows could be distinguished in different colours, for instance. There is an audible alarm which can be **MUTEd**.

Simple "low-res" bar charts of asterisks can be created to display figures rounded to an integer number, so that all figures between 2.5 and 3.5 will

be displayed as three asterisks, for instance. With the **REPT** command, charts can be constructed from other characters.

Instead of co-ordinates, formulae can refer to series of cells (eg part of a column) by a **NAME**, invoked by the appropriate command and cell co-ordinates at the time of creation. So a column **NAMED "Net"** could be accessed by the formula.

VAT = Net * .15

and the subsequent formula could be:

Gross = Net + VAT

Conclusions

Apart from the time taken accessing the disk, this is the sweetest-tempered spreadsheet program I've ever used, and I've tried most of them. I don't think it can be crashed; the worst it will do to you is clamp unpleasantly and display an **ILLEGAL PARAMETER**

message if you do something forbidden.

As I've indicated, the documentation is superb - though not quite perfect - and if I wasn't locked into Visicalc as firmly, I'd be seriously tempted to use it to run my entire life. I will nigh, if someone can tell me how to convert my Visicalc files, and how to get my printer to

behave itself with it.

Verdict

FOR: Powerful, value-for-money, well documented, useful **HELP** screens
AGAINST: Uses disk a lot, minimal use of colour in graphics, poor documentation on printer support.
Excellent +

| Under review | Multiplan |
|--------------|---|
| Description: | Spreadsheet |
| Supplier: | Kobra Micro Marketing |
| Address: | PO Box 28 Henley on Thames RG9 1PT 04912 2512 |
| Telephone | Machine-code |
| Language: | Superbly documented |
| Summary: | spreadsheet, slowed down somewhat by disk access time, but still probably the best there is |
| Price: | £99.95 |



Action Stations!

The fate of millions is in your hands...

You are the Defence Commander of a major city under attack by unknown hostile forces. Desperately you try to locate their position and destroy the enemy in the air and the squads of Urban Commandos trying to penetrate your ground defences.

Suddenly another menace appears, a roving, swirling ball of neutrons defended by a guided fireball. The only way to save your Command Centre and the city is to score a direct hit from above on its vulnerable centre point.

But watch the airborne attack. Every second they come closer to your Command Centre, every second brings the city closer to oblivion...

CITYATTAK is an all new, fast action, machine code game. It features superb graphics, fourteen levels of play and seven screens.

NOW AVAILABLE FROM YOUR MAIN SOFTWARE RETAILER.

COMMODORE 64



Attention: Amateur Radio Enthusiasts

Low cost teletype, morse and ASCII for your VIC-20 or Commodore 64!

JUST ONE MODULE TO PLUG IN AND GO!

The "Micropatch" consists of an excellent Terminal Unit together with really user friendly software in one package

- True dual channel mark and space multi-stage 4 pole, Chebyshev active filters.
- Automatic threshold correction for good copy when one tone is obliterated by QRM or selective fading
- Easy, positive tuning with triple LED indicator
- not a low-cost, low-performance phase-locked loop detector!
- Switch selected 170Hz or wide shift on receive
- 800Hz multi-stage active CW filter.
- Automatic PTT.
- RTTY anti-space.
- Demodulator circuitry powered by external 12V D.C. (not supplied) to avoid overloading host computer and for maximum EMI isolation.
- Exar 2206 sine generator for AFSK output.
- Shielded transceiver AFSK/PTT interface cable provided.
- Plus or minus CW keyed output.
- FSK keyed output.
- Split screen display with message memories and time of day clock

Price: MP-20 or MP-64 £129.00 inc VAT £1.50 P&P & Ins.

Twelve months parts and labour warranty on all products sold

All prices include VAT @ 15%
For further details of any product
please send a large SAE
CLOSED ALL DAY WEDNESDAY

**I.C.S. Electronics Limited, PO Box 2
Arundel, West Sussex BN8 0NX
Phone: (024 365) 590**



VIC 20 — ADD ONS

Vixen RAM Cartridge

Switchable between 16K, 11K, 8K and 3K

Give you the option of full 16K RAM or 6K and 3K RAM in one package. When added to a standard Vic-20 gives 16384 bytes or extra memory in memory blocks 1 and 2 or 3092 bytes of extra memory into the 3K memory block AND 6192 bytes of extra memory switchable between memory blocks 1 and 3

- Fully compatible with available motherboards/modules
- Simply plugs into the rear expansion port of computer
- No re-addressing of existing Basic programs needed

£34.95



THE VIXEN MOTHERBOARD

THE EXPANDABLE EXPANSION SYSTEM - Providing 4 additional cartridge slots PLUS ROM socket. The slots are switchable, enabling cartridges to be left in place and selected as needed by switches, thus avoiding constant handling and danger of breakage. Having one socket at the rear enables further expansion. Used in conjunction with one or more Vixen Rams full expansion can be achieved. ROM socket enables ROMs and Eproms to be fitted for future software programs, toolkits, etc. A range of ROM based software will soon be available from the manufacturers. Industry standard Eproms, 2716, 2732, etc., are readily available and easily programmed and copied. A sound investment for the serious user and serious games player which will not become obsolete.

£31.95

TREMIVER LTD

93a Pack Lane, Basingstoke, Hants

I wish to order the following

| Quantity | Item | Amount |
|----------|------|--------|
|----------|------|--------|

TOTAL

All prices include VAT and post and packaging. All items include a full year guarantee. Products are stocked and usually despatched within 10 days. Overseas customers add £4 post and packing. Cheques/Pound Order, etc., payable to Tremiver Ltd.

Please debit my Access/Barclaycard/Debit Card below

Round the clock
7 days a week
Telephone orders
0256 66114

Card No.

Signature

Name

Address



Screen scene for the 64

Disk games special

AZTEC CHALLENGE

Joystick
Price £12.95

If you fancy yourself as a joystick wizard, if your reflexes are on the macrosecond side of sharp, and if you want a multi-screen multiple-challenge game that could easily last you all day (we spent about seven hours completing the game), you could do worse than consider Aztec Challenge.

In spite of the length it's not an Adventure - just a series of seven very different tasks to be completed successfully. The scenario is that you're an Aztec selected as a human sacrifice, your only chance being the successful completion of several challenges. None are easy, all are fun.

Each player (one or two) gets five lives with which to complete each stage; use them up and you're back at the start of that stage (though thankfully you're not dumped back to the beginning of the game). You first run a gauntlet of your erstwhile pale chucking spears at you (joystick down to jump over them, up to duck and/or the spears). If you make it to the temple you dodge tumbling boulders as you pant up the (very long) stairs to the entrance - joystick right and left.

Once inside you have to negotiate different rooms with various hazards like bits of roof falling in, saws appearing out of the floor, chasms opening up. Here your bickie is running like a looney anywhere, and your joystick is used to stop him and have him leap over obstacles. Beyond that, there's the neighbourhood vermin to visit over, everything from snakes and scorpions to guanas and slugs. Then you're at a tile-hopping problem, with some tiles booby-trapped. Beyond that is a lake full of perhanna fish to swim through. And finally, there's the real pig of a problem, a bridge with one, two or three steps missing; joystick up to make your running Aztec leap three steps, left for two, down for one. The gaps come so quickly that you need really acute reflexes to make the right movement.

And that's the seventh and final stage - except that you now start on phase two, where everything happens much more quickly. Get through that, and it's all quicker still. And then you do it all again; by night.



We took all day to get through phase one, and it's riveting. See all the different uses of the joystick? Very neat. And with a couple of exceptions (notably the unconvincing vermin) the graphics on each stage are really excellent, especially in terms of attention to detail: the wall hangings in the temple rooms are positively Art, the Aztec's lion cloth (lape convincingly (if demurely) while he runs, his feet go like crazy, the parana sword in lake... well, like parana. Swam for that one is also great, though on the whole the designers went rather OTT on the soundtrack, it gets boring after a while.

Ignore the graphics on the cover, by the way, which feature a young lady with overdeveloped mammons being chased by a smiling gent with bulging loincloth, bottled tan and silly hair do. It's all sadly irrelevant. [C/D]

Cosmo via Audiogenic

Presentation: 0000
Skill level: 0000
Interest: 0000
Value for money: 0000

FORBIDDEN FOREST

Joystick
Price £12.95

Another Cosmo offering, and this one is MAGIC. No, it's better than that. OTT music and introductory screens again, but at least they allow you to admire the author's care with detail and his facility with 64 programming - quite brilliant use of colour, graphics, sprites and sound effects.

Interesting scenario, too. You're a hunter armed with a bow and arrow, wandering for some reason through an evil forest. You're actually after the Demagogon, though Lord knows why: he's surrounded himself with a variety of generally offensive monsters.

Multiple levels of play again, and a choice of difficulty level from 1 ('unotom') to 4 (described quite accurately as 'crazy'). Starts quite easily with an attack from a swarm of long-size spiders you have to press the fire button once to load, again to shoot. You're better off running away once you've loaded, because you don't get enough time to do both before the spiders get

At which point you'll notice the fabulous scenery effects, with a real sense of perspective: the landscape further away scrolls past more slowly than the immediate background, the sun moves around its orbit as you move, night falls and the moon rises, the moon wanes and day breaks again... Wow!

Anyway, defeat the spiders and you go into a klanatic dance of joy. Fun the first time, but it goes on... and on, and on. And it happens every time you pass to the next stage. Which, after the spiders, is the long-size killer bee. This comes a shower of ounces from easy enough to kill, but even if a dead one lands on you, you end up looking like something you wouldn't offer your cat. Followed that is a fireball-dropping dragon - very difficult to hit, very nasty what you get hit (barbecue time).

The dragon was found very tricky to get past. But then there's the really difficult one: a convincingly evil phantom hiding behind the trees most of the time, with tries for a between-the-eyes shot (well, between what would be the eyes if he/she/it had any). Meanwhile you're also avoiding a bunch of gibbering skeletons armed with toasting forks. You can knock that off easily enough, but getting the phantom isn't easy.

Then the game gets damn near impossible, because having seen his mummies vanquished and being naturally a bit less than surgical about the Big D himself takes a hand. The sky darkens, lots of lightning, occasional glimpses of large but essentially shapeless mass. You've got 60 seconds to detect and despatch him, and he's a vulnerable except for one spot between the eyes.

Expore enough variety in play to make things interesting, a complicated scoring system to rack up. Scores with your buddies, but especially the superb graphics and good detail - they all make the one something rather special. Shame about the intrusive sound and innumerable pigs, but all in all a big haul for author Paul Norman. [C/D]

Cosmo via Audiogenic

Presentation: 0000
Skill level: 0000
Interest: 0000
Value for money: 0000

FRANTIC FREDDIE

Joystick
Price £12.95

Amazingly quick load, of course, and PRINT FR(0) shows all (at

With more and more 64s being sold with a disk drive, it's logical enough to see the arrival of a number of games on 1541 floppy disks. Now, you've all played games on cassette and on plug-in cartridge: what's so special about games on disk?

bet trying RUN chains in another program ('one moment please') which is rather slower. Obviously old machine code when it gets free, though. Both seem to be the sort of Freddie games.

Francis Kiddie is a telephone number (it says here) who starts up and down poles on to different levels, collecting pots of gold (10 pots) and hoping to get hit by the passing star (100) while avoiding the Grebbles - a bit dumb, but tediously eager to knock Freddie off again.

So it's another up-and-down-the-ladders long-sky game. But it's a pretty superior version - lots of on detail (Freddie bounces angrily into oblivion when a Crabbe does the business on him) and several levels of increasingly difficult play. OK graphics, very good use of colour, excellent soundtrack in a rock 'n' roll style reminiscent of the late 60s. It's not especially original, and it is all a bit two-dimensional (particularly by comparison with some of the others here); but the level of interest is maintained by a program of silly interludes, useless bonuses, and a constant stream of messages along the top of the screen. DJ

Commercial Data Systems via
Auchydog

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■ |

LASER STRIKE
Joystick
Price £10.50

Of the disks for review, this is the most unconventional in the arcade genre style. You're in the ground-pool space fighter trying to get through the asteroid fields and beat the ice caves; sounds familiar?

Well, yes it is. But if you like arcade action, you could do worse. The sound effects are muted but realistic, and the graphics look good (with the possible exception of you not infrequently demise, which looks like no explosion I ever saw in Star Wars). There's a satisfyingly difficult and increasingly complex path to follow, with a variety of hazards and a rub-your-eyes while palm-ing-your-head collection of controls to manipulate ed parameters to watch - joystick up and down and forward to move back to bomb fire (would you believe) fire your laser cannon. Plus a top-line display for number of ships, score, and number of weapons remaining per section.

The asteroid fields and the ice caves each have eight sections. Every time you pass on to the next the game speeds up a bit, you get 10 points, and the solar pods turn into debris.

The what? Well, the solar pods scattered in your path are harmless until they turn orange, which means they are lethal debris. They get to be debris arbitrarily from time to time, or you can do it for yourself by shooting at them - hit them and you get 10 points. You can also score by hitting the bases on the landscape scrolling by beneath - direct hits on reactor towers only, though it's not easy to distinguish towers from the rest of the base; and every time you fire or bomb you lose a point. Then there's the missile, launched from time to time from the ground. It's pretty sluggish and easily avoided, unless you're dodging meteorites and debris at the time. You also get 100 points if you can zap it, though that isn't easy.

Near the end of section eight you'll come across the orbiting Control Centre, worth a thousand points and an extra ship if you hit it (you start with three ships).

The ice caves are a bit disappointing after that. Still not easy, mind, but basically, you're just avoiding the walls while still finding bases to bomb.

Conclusion? New ideas may be attractive, but there's nothing wrong with familiarity. And that is a solid enough version of a standard arcade game, done with no little care and a satisfying degree of difficulty. DJ

Iris Hatcher

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |

SLINKY
Joystick
Price £12.95

A third from Coeml, and it's Paul Norman again (he did the 64 version, someone called Vance Konig gets the credit for the original). And it's better than Chubbin Forest.

Here, the applause doesn't go so much on the clever graphics and some-setting effects it's more because of the novelty of the game itself, the way it requires some intellectual skill from the player as well as more reflexes and joystick dexterity, and the author's evident sense of humour.

Novelty? You're controlling one of those metal spiral executive-type things that will walk down stairs. You're on a grid (looks very good, very 3D) and you have to touch every square. Apart from the black holes, which return you to the start position at the top left corner. When you touch a square (and only diagonal movements on the joystick will work) it changes colour, so you have to alter the colour of all the squares on the grid. Easy, huh?

You start with 25,000 points and you lose some every time you hit a square - though there's a bonus if you land on one of the randomly flashing squares. You lose more points if you're dirty when you're hopping, and you get dirty by bumping into an occasional dust cloud called Dusty. There's another hazard that appears randomly, a passing magnet called Magna. Then there's Ralph the Random Randrop: if you're clean and it hits you, you can move faster. But if you're dirty you rust, so you get halted off by Ot Can Charlie and you lose a life - you also lose a life if you jump off the edge.

Sense of humour? When you get through each stage there's a dash 'cartoon featurette' - which starts with an explosion of flags, fire works and top-hat-hoorays generally to the 1812 Overture. If you get through without losing a life (you start with five) there's a fun 'instant replay' of your move.

Then there's stage two, where the squares change colour every time you touch them - so jump back on to a square and it reverts. The hazard this time is a species of lunatic vice (no, not that kind of vice). Up another level and it's Lorenzo the tube-bugger, an irritating little bug who follows you and will dump you off the grid when it catches you. Thereafter successive levels feature different combinations of these.

This game has the lot. It's different, it looks very good, the progressive increase in difficulty and variety of hazards maintains the interest, it requires some care and some skill while at the same time retaining the important element of luck (usually bad). - In short, it engages the senses. Is that too heavy a judgement? Well, try it for yourself. No apologies for the top marks - it's the best game we've seen so far this year! JCD

Coeml via Auchydog

| | |
|------------------|-------|
| Presentation: | ■■■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |

ZEPPELIN RESCUE
Joystick
Price £19.99

Not an many one, that. It doesn't sound great - you're piloting a Zeppelin (well, it looks more like the Goodyear blimp as featured at the Cup Final) to rescue various individuals from a variety of city locations. The graphics aren't fabulous, with washed-out shades of blue. So why did I enjoy it so much?

Well, for a start the program shows a good deal of care. It cares about the tedious of lengthy text intro and extended graphics interludes between plays, so there aren't many. It's clever enough to give you a pre-game 'practice mode', and it lets you decide the game parameters - how many games before the shutters come down, how many ships per game, one or two players. And it cares enough for variety to give you a fiendishly difficult control problem: those Zeppelins are damn unmanoeuvrable!

A realistically tricky steering problem is what takes most of the program. There's only about 6,000 bytes free when it's loaded, though machine code would have been more economical than Basic. Since it's not a fast-action sharp-reflexes game, the slowness of Basic isn't particularly a handicap - and it's possibly a virtue, since the problem with steering in the leaden, lumpy, flying habits of the ship.

The action starts with a somewhat 2D city and desperate individuals screaming to the tops of skyscrapers. You drift into the top of the screen and go to collect them, avoiding buildings, naturally, but also steering clear of the curious red sap-filled clouds. Subsequent levels (five different cityscapes in all) give you different steering problems to solve, including an evil one that has you negotiating a miniature gap in a suspension bridge to pick up the idiot who got trapped on one of the piers underneath.

The main appeal is the skill requirement. Presumably it is possible to become really proficient with the joystick, at which point the game becomes only average; but the difficulty is so great that the boredom threshold looks a long way off. DJ

Computer Software Associates via
Marketing Micro Software

| | |
|------------------|-------|
| Presentation: | ■■■ |
| Skill level: | ■■■■■ |
| Interest: | ■■■■■ |
| Value for money: | ■■■■■ |

The 5th International Commodore Computer Show.



commodore

Number One in the world of microcomputers.

The 5th International Commodore Computer Show.

Dear Reader

1984 will see the fifth year of the International Commodore Computer Show. Due to popular demand we will be holding 2 shows:

In London

on : 7th, 8th and 9th June
at the : Novotel London, Hammermith, London W6
(Formerly the Cunard International)

In Leeds

on : 27th, 28th and 29th September
at the : Leeds Exhibition Centre, Sovereign Street, Leeds

The Shows will be packed with events and to give you a sneak preview, here are just some of the features you can expect to see:

- EXCITING NEW PRODUCTS FROM COMMODORE
- HOSTS FROM A NATIONAL RADIO STATION
- CELEBRITY GUESTS INCLUDING INTERNATIONAL FOOTBALLERS
- COMPETITIONS SEMINARS AND SPECIAL PROMOTIONS
- MORE EXHIBITORS THAN EVER BEFORE

Don't miss this opportunity to see what is latest and best for Commodore users.

Best Wishes

Aileen Bradley
AILEEN BRADLEY
Show Organiser



commodore

Number One in the world of microcomputers.

Commodore Computer Exhibition Department, 675 Ajax Avenue, Slough, Berkshire SL1 4BG

MAKE THE MOST OF YOUR COMMODORE WITH BOOKS AND SOFTWARE FROM SOFTALK

Books

- 1 **The VIC 20 For Kids of All Ages**
If you want to learn about computing with your VIC 20 this is where you start. Hardware, software, programming and intro to Basic are all here. £9.95
- 2 **Mastering The VIC 20**
If you think your VIC 20 just plays games - think again! This book opens the door to home applications, software, advanced graphics and word processing. Strong and useful. £9.95
- 3 **How to Use the VIC 20**
Very much for newcomers to the VIC 20, shows how to operate, load, save. Provides a good introduction to graphics, sound and Basic. £6.95
- 4 **VIC 20 Games, Graphics and Applications**
If you are using the 32 expanded VIC 20 this book teaches you how to use the real time clock, colour, graphics and user definable char, set to write some clever software. £8.95
- 5 **Commodore 64 Graphics and Sound Programming**
The best book we have seen yet on introductory and advanced graphics and sound programming for the COM 64. £13.95
- 6 **Elementary Commodore 64**
Previously reviewed as one of the most helpful and clear introductions to the COM 64. A best seller in the USA. Good for intro into Basic programming. £10.45
- 7 **Year Commodore 64**
Introductory and advanced Basic for the COM 64, sprite graphics and memory location guide. Considerable details. £12.95
- 8 **The Master Memory Map For the 64 For the VIC 20**
Both books provide pages of memory locations inside your computer which makes the computer perform in special ways. £10.25 each
- 9 **Basic Computer Programs for the Home**
180 pages packed with Basic programs for home use. Tree plans, Xmas card lists, maths homework, expense budgets, diary and 80 other uses. Exceptionally good value. £12.95
- 10 **Advanced Basic**
Covers extended features of strings and files and application of Basic in graphics, simulation, statistics, matrices, co-ordinate geometry and more. £10.95
- 11 **Basic Basic**
Integrates the learning of Basic language with school mathematics. Flowcharts and programming techniques are a strong feature. £10.95
- 12 **I Speak BASIC (Commodore 64 Students Text) (VIC 20 Student Text)**
Two books which provide a comprehensive guide to Basic language, subroutines and skills in learning how to program. £9.95 each
- 13 **Commodore 64 Assembly Language**
An excellent comprehensive guide to programming in Assembly language for the COM 64. £22.95
- 14 **1001 Things To Do With Your Personal Computer**
An amazing 1001 collection of hobby, scientific, mathematical, business and financial and home use programs written in Basic. A must for any enthusiast. £10.95
- 15 **The A-Z Book of Computer Games**
Very much for the aspiring micro computer games buff. This book teaches the techniques of games programming (in Basic), includes 26 ready to run games, good value. £10.95
- 16 **How to Make Money with Your Micro**
Very much for the micro-entrepreneur. How do you make money out of micro - read this book! £11.50
- 17 **Directory of Computer Training 1984**
720 pages crammed with information on 1984's 3,500 computer training courses. A complete section is devoted to training and career development in computing, and a special feature includes details of over 750 self study courses, video based training, audio cassettes etc. £47.95
- 18 **Working with Computers**
A general introduction to computing as a career. Computers at work, microchip technology, graphics, word processing, databases. £5.95
- 19 **Microchip Technology (The Past and Future)**
A description of the silicon microchip technology, both as an amplifier and for digital devices like memories and microprocessors. New technologies such as 16- and 32-bit microprocessors, gallium arsenide and optical computing are discussed. £9.95

Guides, Handbooks etc

- 20 **The Commodore User's Encyclopedia VIC 20** - £10.95
- 21 **The Commodore 64 User's Encyclopedia** - £10.95
- 22 **Commodore 64 Reference Guide** - £15.25
- 23 **The Commodore 64 VIC 20 Basic Handbook** - £11.95
- 24 **The Easy Guide To Commodore 64** - £9.95
- 25 **Softalks VIC 20 Games Catalog** - Free
- 26 **Softalks COM 64 Software Catalog** - Free

Software for the Home

- 27 **Data Manager**
A general purpose information storage and retrieval system for any category of data i.e. club lists, recipes, software, birthday etc. Also performs sum, average, standard deviating and frequency charts for any statistical data. Very useful computerized filing system. COM 64 Disk £25.95
- 28 **Money Manager**
Sixteen Budget and Actual categories inputted on monthly basis of 12 month period. Provides graphical analysis of budget vs actual. For home or business use. COM 64 Disk £25.95
- 29 **Home Inventory**
For cataloging of all your possessions for up to 40 categories. Will value your possessions in any category or in all VIC 20/COM 64 tape or disk. £14.95
- 30 **Decision Maker**
If you have some tough decisions, use Decision Maker to weigh up the important factors and come to a quantified decision. Up to 11 influencing factors. VIC 20/COM 64 tape or disk. £14.94
- 31 **Typing Tutor/Word Invaders**
This is THE way to learn high speed touch typing. Measures typing speed and points out mistakes. Line Word Invaders to blast invading words out of the sky! VIC 20/COM 64 tape or disk. £19.95
- 32 **Success With Maths**
If you want to come top in maths this series of programmed learning will get you there. Quadratic Equations, Linear Programming, Fractions or Circles. One program per subject. COM 64 Disk or tape (please specify your choice). £23.50 per program
- 33 **Dungeons of the Algebra Dragons**
For ages 14 upwards use your algebra skills to outwit the Algebra Dragons. A challenging and enjoyable way to learn 3-D graphics and 5 skill levels. COM 64 Tape or Disk. £23.95
- 34 **Demonstration Disk**
Example of Home management, educational and entertainment software from one of the leading USA Commodore software companies. A demonstration disk only. Full software range available from Softalk. COM 64 Disk £4.95

TRADE ENQUIRIES WELCOME

Please add 60p per line to each order for postage, packing and insurance

Please supply books or software indicated

I enclose cheque/money order for £

Name

Address

Circle the number indicating your choice

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | 32 | 33 | 34 | | |

SOFTALK 16-18 Princess Victoria Street, Clifton, Bristol BS8 4BP. Telephone Bristol 0272 877245

COUNT-DOWN TO THE COMMODORE SHOW

THIS YEAR split across two venues – London's Novotel in June and Leeds Exhibition Centre in September – the Fifth International Commodore Show will be a magnet to all users who want to be firstst with the latest. Here's the first of two exclusive previews.

SIX NEW COMMODORES FOR THE FIFTH COMMODORE SHOW

Always the high-point for the dedicated Commodore fan, this year the Fifth International Commodore Show at the Novotel, Hammer-smith, London from June 7 to 9 will be even more of a must, with the news that the company will be showing no fewer than six new machines there (see story on next page).

In addition, users outside London will have a second chance to see the goodies on display – and, to be honest, to see how many of the new ideas of June have become no more than fading gleams in the company's collective eye as the marketing realism of autumn begins to bite at the Northern Commodore Show in Leeds from September 27 to 29.

Attendance at Commodore Shows has mirrored the explosive growth of the personal computer market when the original calculator-keyboard Pet was only just beginning to revolutionise the entire scene, a mere 8,000 punters found their way to the first Pet show at the Cafe Royal. In 1981, the year of the 8000-series 80-column business machine, it attracted 8,000 appropriate, that; and in 1982, year of the Vic, the figures had grown to 12,000. Last year with the 64 taking everyone's heads around, attendance had more than doubled at 26,000. And this year it already seems likely that organiser Pione Anderson's prediction of 40,000 in London and Leeds will be more than exceeded.

Fun and games

Quite apart from the individual exhibits already demonstrating a sizeable industry involvement and still rising – the 'features' of

the exhibition itself will attract enormous interest, with the involvement of Radio Luxembourg on a daily basis, daily seminars (featuring such well known international pundits as Jim Bunterfield, Jack Cohen, Mike Todd and Brian Grainger – most of whom will be familiar to CU readers), International Football and Basketball challenges featuring soccer and basketball stars playing the highly-acclaimed cartridge games, TV 'stars and pianists' presenter Patrick Moore introducing his astronomy program, BJ the Bear (star of the new talking educational software) appearing in person, a running business simulation using the famed Coplan software, and illustrations of entries for the International Computer Art Challenge, in a setting allowing would-be electronic artists to have hands-on experience of programming graphics are other attractions.

New machines

But inevitably, the main interest will centre on the new machines – all six of them, including the long-awaited 16-bit Commodore PC, plus five important peripherals. Already, major Commodore software houses Pre'r 'von Software has announced that they are converting their Superbase package (which has already sold over 10,000 copies in its 64 version) to run on the new IBM look-alike machine, not only taking advantage of its 256K memory and 320K disk storage (compared with the mere 38.9K memory and 170K of disk space on the 64/1641 combination), but also including a number of enhancements.

These will expand the possible record size to 2600 characters, will permit screen or report formats up to 240 characters wide (with lateral scrolling on screen formats, of course), and will add a full editor, making virtually a word processor as well. The price is not yet known.

Here are the specifications of the new equipment.

COMPUTERS

Commodore 16

Described by Commodore as 'a very advanced home computer with features normally found on computers costing much more... designed with first-time users in mind', in many ways the 16 could be considered as a 16K version of the 64. It has a slightly more sophisticated keyboard than its big brother, with four cursor keys and a help key.

That, they say, will be 'a great asset when learning to program'.

since 'it highlights errors in lines of programming right down to the individual instructions and tells you why they went wrong'.

It will be interesting to see how much more informative that is than Commodore's well-known (and frequently infuriatingly unhelpful) 'SYNTAX ERROR' message.

Like the new 264 and V364 machines, the 16 has basic 3.5, which has over 75 commands "including built-in graphics and sound commands".

Like them, too, it has a built-in machine language monitor and a screen windowing capability.

Specification

Memory

16K RAM Standard – 12K RAM user accessible for basic programs.

ROM

32K ROM Standard (includes operating system and Basic interpreter).

Microprocessor

7501 Microprocessor. 0.88 to 1.75 MHz clock.

Display

40 columns x 25 lines of text.

Colours

121 colours (16 colours: 8 luminance levels + black).

Characters

Upper and lower case letters, numerals and symbols. Reverse and flashing characters. All Pet graphic characters.

Display Modes

Text characters. High resolution graphics/multi-colour graphics. Split screen text/high resolution graphics or multi-colour.

Resolution

330 x 300 Pixels.

Sound

2 Tone generators or 1 Tone and 1 white noise generator.

Volume

9 Volume levels.

Keyboard

Full size/full stroke design.

Keys

66 keys total. 4 cursor control keys. 4 programmed (reprogrammable) function keys (up to 8 user defined functions possible). Colour control keys. Help key. Upper and lower case character set. Graphics character set.

Inputs/Outputs

C16 user port. Commodore serial port. ROM cartridge and parallel disk drive port. 2 joystick ports. C1531 Cassette unit interfaces port. Monitor output – composite chrominance/luminance. Audio input/output. Power supply input.

Peripherals

SFS 401 fast disk drive. C1542 disk drive unit. C1531 cassette. MCS 801 colour dot matrix printer. MPS 803 dot matrix printer. DPS 1101 daisy wheel printer. C 1520 printer/plotter. C 1703 colour monitor.

Other Peripherals

Will also work with C 1641 disk drive unit, C1526 dot matrix printer.

Dimensions

Height 3 1/4 ins
Width 16 ins
Depth 6 ins

Power consumption

8 1/2 Watts maximum.



Commodore 264

At first sight, the main difference between the 16 and the 264 is the 8K of user-available memory available in the latter machine (though it's a new style of casing with "arrow" cursor keys and action keys along the top. In fact, the ROM and RAM in the 264 totals 96K).

Specification

Memory

64K RAM Standard - 80K RAM user accessible for Basic programs.

ROM

32K ROM Standard (includes operating system and Basic interpreter).

Microprocessor

7801 Microprocessor. 0.89 to 1.75 MHz clock.

Display

40 columns x 25 lines of text.

Colours

121 colours (15 colours: 8 luminance levels + black).

Characters

Upper and lower case letters, numerals and symbols. Reverse and flashing characters. All Pet graphic characters.

Display Modes

Two characters. High resolution graphics/multi-colour graphics. Split screen text/high resolution, graphics or multi-colour.

Resolution

320 x 200 Pixels.

Sound

1 Tone generators or 1 Tone and 1 white noise generator.

Volume

1 Volume levels.

Keyboard

Full size/full stroke design.

Keys

67 keys total. 4 cursor control keys. 4 programmed (reprogrammable) function keys (up to 8 user defined functions possible). Colour control keys. Help key. Upper and lower case character set. Graphics character set. Reset button. Escape key.

Inputs/Outputs

24 user port. Commodore serial port. ROM cartridge and parallel disk drive port. 2 joystick ports. C1551 Cassette unit interface port. Monitor output - composite chrominance/luminance. Audio input/output. Power supply input.

Features

Built-in Basic 3.5 - over 78 commands including built-in graphics and sound commands. Built-in Machine Language Monitor with 12 commands. Screen Window capability.

Dimensions

Height 2 1/4 ins

Width 13 1/4 ins

Depth 7 1/4 ins

Net Weight

3 lbs 10 oz.

Power consumption

8 1/2 Watts maximum.

Commodore V364

This is an upgraded 264, with a 260-word vocabulary speech synthesiser, 67-key keyboard including separate numeric keypad, help key and reset button. The vocabulary can be supplemented from cartridge or disk. It has ROM-resident "3-phase" combined WP, spreadsheet and database program.

Specification

Memory

64K RAM Standard - 80K RAM user accessible for Basic programs.

ROM

32K ROM Standard (includes operating system and Basic interpreter).

Microprocessor

7801 Microprocessor. 0.89 to 1.75 MHz clock.

Display

40 columns x 25 lines of text.

Colours

121 colours (15 colours: 8 luminance levels + black).

Characters

Upper and lower case letters, numerals and symbols. Reverse and flashing characters. All Pet graphic characters.

Display Modes

Text characters. High resolution graphics/multi-colour graphics. Split screen text/high resolution, graphics or multi-colour.

Resolution

320 x 200 Pixels.

Sound

2 Tone generators or 1 Tone and 1 white noise generator.

Volume

9 Volume levels.

Speech

Speech capability built-in. Over 260 word vocabulary

included. Additional vocabulary can be loaded from optional cartridges or disks.

Keyboard

Full size/full stroke design.

Keys

67 keys total. 4 cursor control keys. 4 programmed (reprogrammable) function keys (up to 8 user defined functions possible). Colour control keys. Help key. Upper and lower case character set. Graphics character set. Reset button. Escape key.

Inputs/Outputs

24 user port. Commodore serial port. ROM cartridge and parallel disk drive port. 2 joystick ports. C1551 Cassette unit interface - 264 Monitor

output - composite chrominance/luminance. Audio input/output. Power supply input.

Features

Built-in Basic 3.5 - over 78 commands including built-in graphics and sound commands. Built-in Machine Language Monitor with 12 commands. Screen Window capability. Various built-in software options.

Dimensions

Height 2 1/4 ins

Width 13 1/4 ins

Depth 7 1/4 ins

Net Weight

3 lbs 10 oz.

Power consumption

8 1/2 Watts maximum.



8296

Specification

Microprocessor

MC6802.

Numeric data format

Flowing point mantissa 9 digit. Exponent 2 digit.

Similar to 8096 except with 24K system memory in ROM and 128K user RAM. It is likely that it will be shown with UCSD Pascal.

We've gone to town again on our biggest ever Computer Show.

The 5th International Commodore Computer Show.

NOVOTEL LONDON
(FORMERLY CUNARD INTERNATIONAL HOTEL)
SHORTLANDS, HAMMERSMITH, LONDON W6.

THURSDAY JUNE 7th 12 p.m. - 6 p.m.

FRIDAY JUNE 8th 10 a.m. - 6 p.m.

SATURDAY JUNE 9th 9 a.m. - 5 p.m.



commodore

Number One in the world of microcomputers.

This is our 5th International Commodore Computer Show and it's going to be bigger and better than ever, with something to capture everybody's interest.

Come along and try out the whole range of Commodore home and business computers, peripherals and software, and talk to the experts about them.

If you're a business man, you can keep ahead of the times by visiting our seminars hosted by Jim Butterfield, the internationally renowned computer expert, or for advice, visit the Milton Keynes Information Exchange.

But don't miss Patrick Moore, who'll be on hand to demonstrate

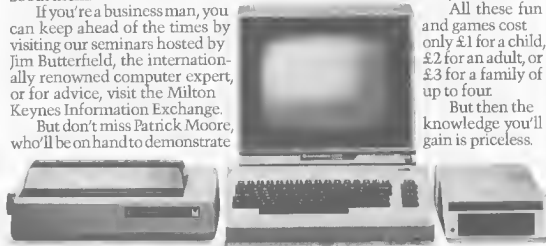
the Commodore Astronomy software, and unravel the mysteries of the Universe. He'll also attempt to answer any questions under the sun.

The kids will have fun meeting B.J. the Bear, Gortek, and adventuring in the games arcade.

There's lots more to enjoy, including music from Radio Luxembourg, so be sure not to miss this year's show.

All these fun and games cost only £1 for a child, £2 for an adult, or £3 for a family of up to four.

But then the knowledge you'll gain is priceless.



ghon

System memory
24K ROM, 2K RAM.

User area
128K RAM.

Keyboard
Detachable. Qwerty layout 73 keys. Separate numeric pad.

Display
40-column, 25 row green phosphor integral screen with full Commodore graphics and alphanumeric character set.

Input/output
ECDE-486. User port. Memory and I/O expansion Bus User port. Cassette port.

Language
Built-in Basic interpreter.

Variables
Real, Integer, String.

Array variables
Real, Integer, String-single and multidimensional.

System commands
LOAD, SAVE, DLOAD, DSAVE, RUN, STOP, END, CONT, PEEK, POKE, SYS, WAIT, USE, CATALOG, DIRECTORY,

COPY, BACKUP, HEADER, CONCAT, SCRATCH, RENAME.

Editing and formatting commands
LIST, REM, TAB, SPC, POS, CLR/HOME, INST, DEL, CRSR, Control, ESC, TAB Key

Array and string commands
DIM, LEN, STR\$, VAL, CHR\$, ASC, LEFT\$, RIGHT\$, MID\$.

Input/output commands
INPUT, GET, DATA, READ, RESTORE, PRINT.

Program flow
GOTO, IF... THEN, FOR... TO... NEXT, GOSUB, RETURN, ON-GOTO, ON-GOSUB

File commands
OPEN, CLOSE, DOPEN\$, APPEND\$, DCLOSE\$, RECORD\$, PRINT\$, GET\$, INPUT\$.

Algebraic operators
=, +, -, *, /, ^, <, >, <=, >=

Logical operators
AND, OR, NOT.

Dimensions
Height 460mm
Depth of CPU 400mm
Depth of keyboard 245mm
Width 460mm

There are also plans to allow a machine running under Unix.

Peripherals
SFS 481 disk drive

The long-awaited speedier disk drive for the Vic and 64, with a maximum data transfer rate of 1678 bytes per second, allowing an average access time of 285 milliseconds.
Still only 170K of storage, though.

Specification

Maximum storage
170K of data (formatted) - 35 tracks
File types
Program, sequential, relative and user.

Number of files
Up to 144 different files per diskette

Media
Standard 5 1/4 in diskettes (hard or soft sector accepted)

Data transfer rate
1678 Bytes/sec maximum (parallel). Average access time 285 milliseconds

Controller
6510 Microprocessor - 2MHz clock from Commodore's MOS Division.

Memory
2K RAM, 128K ROM.

Media compatibility
C 1542, C 1541, 4040 and 2031 format disks.

Power consumption
30 Watts maximum.

DPS 1101 daisywheel printer

Using a 100-character Triumph-Adler compatible typewriter.



ELECTRONICS

Vic 20 computers have been talking back to their owners for quite some time. Now, Commodore 64 users can have that same pleasure too—by getting an ADMAN SPEECH SYNTHESIZER! It's word power as endless as there is no set vocabulary. Yet operation is simple. The 64 elements of English speech are pre-programmed to let you put your words together as soon as you switch on. Just imagine...you'll be able to program your own adventure games with characters that can actually talk. Many leading software houses are now developing programs that are compatible with the Adman 64 Speech Synthesizer.

First releases are:

- Twin Kingdom Valley (Bug-Byte) Attack-Attack (Voyager)
- 3D Silicon Fish (Thor Computer Software)

SPEECH SYNTHESIZER NOW AVAILABLE FOR COMMODORE 64 PRICE AROUND £49.95

The Commodore 64 finds its voice!

Adman computers accessories are available from all good computer shops. For further information, why not take a leaf from our speech synthesiser ask for it! See you local dealer or simply post the coupon.

Dept. C, Adman Electronics Ltd., Ripon Way, Harrogate, N. Yorks, HG1 2AU Tel: 0621 740972

Please send me information on Adman Vic 20 Accessories

Name _____

Address _____

5/84 64/Commodore User

* Vic 20 users there are also 8k and 16k RAM PACKS and a 3 PORT EXPANSION MOTHERBOARD

Prices around

- 8k Ram Pack . . . £29.95
- 16k Ram Pack . . . £39.95
- Motherboard . . . £19.95
- Speech Synthesiser . . . £49.95

Adman Electronics Ltd is a member of the Adam Leisure Group PLC

COMMODORE USER

printing at 18 cps, switch-selectable between CBM ASCII and standard ASCII, switch or software-selectable 10/12/18 or proportional pitch, offering underlining, bold and shadow print, horizontal and vertical TAB, subscript and superscript, the new daisywheel is bi-directional, but uni-directional print can be selected as an alternative

Specification

Print method

Bi-directional impact daisy wheel.

Print wheel

100 character print wheel. Triumph-Adler compatible

Characters

Upper and lower case, numerals and symbols. Special characters available on optional print wheel.

Character codes

CBM or Standard ASCII (switch selectable).

Print speed

18 characters per second.

Maximum paper width

110 columns (10 pitch).
132 columns (12 pitch).
145 columns (15 pitch).
82 to 230 columns (proportional spacing).

Character spacing

10, 12 or 15 CPI or proportional spacing.

Line feed spacing

48 lines/inch maximum.

Line feed speed

1 line/second maximum.

Paper feed

Frictional feed.

Paper width

13 inch.

No of copies

Two plus original.

Interface

Commodore serial.

Dimensions

Height 5 1/4 in.

Width 20 1/4 in.

Depth 14 1/4 in.

Net weight

27 lbs 8 ozs.

Power consumption

50 Watts maximum.

MCS801 dot-matrix colour printer

Seven-colour dump of hi-res screen is possible, and letter printing is at 36 cps with an 8 x 8 matrix.



Specification

Print method

Impact dot matrix.

Print rate

36 CPS.

Character font

8 x 8 dot matrix.

Printing colours

Black, cyan, purple, magenta, red, yellow and green.

Character set

Upper/lower case, numerals, symbols, Post graphics.

Character size

Height 8 dots (2.36 mm).

Width 8 dots (2.03 mm).

Number of copies

One monochrome plus original.

Line spacing

Programmable (set at 1/6 in).

Paper width

4 1/4 in to 10 in width (including tractor holes).

Paper feed

Tractor feed only.

Ink ribbon

Special cartridge type

Dimensions

Height 141.8 mm.

Width 477.8 mm.

Depth 348.8 mm.

Weight

8.2kg.

1703 colour video monitor

A high-quality monitor, suitable for use with a computer or VCR, and having a front-mounted composite video socket and rear-mounted sockets for luminance and chrominance and audio signals, in keeping with the current trend towards composite video

Specification

Colour system

PAL.

Screen size

13 in.

Audio

Built-in amplifier and speaker

EXTERNAL INPUT TERMINALS

Video input

Input type: Composite video signal.

Input level: 1.0 Vp-p (sync negative 0.3V).

Input impedance: 75 ohms.

Connector type: phono.

Commodore video input

LUMINANCE SIGNAL INPUT

Input type: Composite video signal (V3).

Input level: 1.0 Vp-p (sync negative 0.3V).

Input impedance: 75 ohms.

Connector type: phono

CHROMINANCE SIGNAL INPUT

Input type: PAL chroma signal.

Input level: 1.0Vp-p.

Input impedance: 75 ohms.

Connector type: phono.

Audio input

Input level: 1.0Vp-p.

Input impedance: 10K.

Connector type: Phono.

Dimensions

Height: 13 in.

Width: 14 1/2 in.

Depth: 15 in.

Weight

25.6 lbs.

NB: The monitor comes complete with an 8-pin connecting lead. A 5 pin lead will be required for use with the Vic-90 and early Commodore 64's.

1531 cassette unit

The specification of this device does not make clear how it will differ from the existing C2N cassette unit, apart from the inclusion of a recording light.

RICHARD SHEPHERD SOFTWARE

A HOME BUDGETING & BANKING SYSTEM THAT REALLY MAKES YOUR COMMODORE 64 WORK!

NOW ON CBM 64 DISK AND CASSETTE



A professional style multi function Cash Controller program. In disk format you can load, and make an entry ... or update your existing records ... In just seconds. This easy to use program can handle up to 400 transactions, giving instant statements of your bank balance. Now there's no excuses for going into 'the red' and paying unnecessary bank charges!

BANK ACCOUNT

- Statements on demand from any date to date
- Holds up to 400 transactions.
- Standing order facility
- All transactions can be automatically coded to allocate up to 16 budget headings
- Search facility for any single item by description or amount

HOME BUDGETING

- 16 budget headings, e.g. Gas, Rates, Car, Tax - you can choose the readings
- Highlights under/over spending
- Full budget expenditure breakdown
- Budget 're-think' facility

LOAN/MORTGAGE CALCULATOR

All you ever wanted to know but didn't like to ask! Calculates

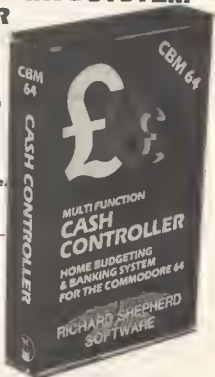
- Interest rates
- Payback periods
- Capital sum
- Period of loan

- PRINTOUT FACILITY
- FULL SECURITY WITH PERSONAL PASSWORD
- SAVE DATA ONTO CASSETTE OR DISK

Available from good computer stores or direct by mail order, at a price that won't upset the Bank Manager!

CASSETTE
£9.95
INCP & P

DISK
£14.95
INCP & P
Dealer enquiries welcome.
Generous discounts.



PRIORITY MAIL ORDER

Please send me ☐ CASH CONTROLLERS
all £9.95 each 64 Cassette ☐ Please tick
at £14.95 each 64 Disk ☐ version required
including post & packing (overseas orders add £1.50)

Name

Address

I enclose cash/cheque/P.O. payable to Richard Shepherd Software

Or debit my Access/VISA Card Number

Signature

ALSO AVAILABLE ON CASSETTE FOR 48K SPECTRUM

All programs are sold subject to the condition that they may not be used or otherwise be lent, hired out, resold or otherwise circulated without the written permission of Richard Shepherd Software Ltd

24 Hour Credit Card Hotline (06286) 63531

REMEMBER TO STATE IF YOU REQUIRE CASSETTE OR DISK

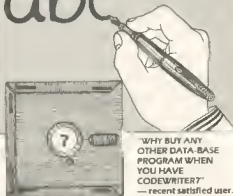
RICHARD SHEPHERD SOFTWARE

ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 63531

CodeWriter

makes
data base and
related programming
as simple as

abc



**'WHY BUY ANY
OTHER DATA-BASE
PROGRAM WHEN
YOU HAVE
CODEWRITER?'**
— recent satisfied user.

Forget about the expense of hiring a professional programmer or the restrictions of 'off-the-shelf' programs. Become your own program designer producing microsoftware to suit your specific requirements. Codewriter enables you to do this, you type commands in your own everyday language, just as you would write them on paper... it's as simple as ABC!

When you've completed your design, Codewriter will write the program code and store it on your own disk whilst you sit back and watch. At anytime, you can of course modify the programs you've designed.

Your programs may include data bases, printed reports, calculations and comparisons between fields of data, development of menus, forms, letters, memos, cheques, invoices, statements, mailing labels... the possibilities for design are endless.

Codewriter operates with most popular micros.

For details on Codewriter, complete and return the coupon to:
DYNATECH MICROSOFTWARE LTD.



Rue du Commerce, Bouet, St. Peter Port
Guernsey, Channel Islands
Telephone: 0481 20155 Telex: 4191130

name _____
address _____
tel. _____

CJ

Up and coming....

Obviously, at this stage, the majority of exhibitors are still finalising plans, frantically debugging recently completed products to get them ready, or even snugly keeping their plans to themselves so that competitors get no wind of them. But here are a few of the nuggets we've been able to glean.

For a fuller preview, see next issue. Exhibitors are asked to get their info to us by April 30 at the latest.

Adman

The newly-released speech synthesiser for the 64, along the lines of their already highly successful cartridge for the Vic-20, will be shown by Adman along with supporting software like Bugbyte's 'Twin Kingdom Valley' graphics adventure game, which has a vocabulary of 400 words, Voyager's action game, 'Attack Attack', and Thor's 3D arcade-type 'Silicon Fish', to mention only three. The speech cartridge is £49.95 inclusive of VAT.

Also being shown are 16K and 32K RAM packs for the Vic, a 3-slit motherboard, and of course the Vic speech synthesiser.

Anagram Systems

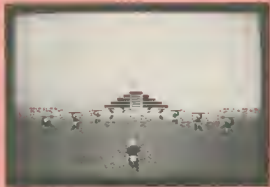
Two ledger packages for the 64, including Easy Stock previously marketed by Commodore, will be shown at £78, inclusive of VAT, together with two business packages for the 700/8096 series, priced £1494 and £1839 respectively.

Audiogenic

A new disk-based game, 'Alice in Videoland', which they claim "set new standards in games and graphics programming on the Commodore 64, and 'Berk', a 64 spreadsheet 'with facilities rivalled only by the likes of Lotus 1-2-3' - a brave claim - head up the Audiogenic exhibit, along with recent games like Forbidden Forest, Frantic Freddie, Pegasus, Asac Challenge, and the addictive Shinky, as well as the Exale Pad graphics tablet.

Automation Facilities

Pride of place among the computer cleaning products on show is taken by the Microkit, £26.94 inc. VAT, including Floppyclean disk drive cleaner, Safeclean head cleaner, Foamclean anti-static case cleaner and Safeclean screen cleaner. They will also be showing the new Bluster kit refills for the Microkit.



Bubble Bus

Three new products to be shown are their purpose-built Bubble Bus which is a 3D war game, Bubble's for adventure program, and an action arcade game.

Dataview Ltd

The new disk-based Wordcraft II, offering the facilities of the world's best-selling word processing program for only £20, will be featured.

Hugo Products

The Personal Computer Workstation is a purpose-built unit complete with four-position adjustment for monitor and keyboard shelves, program-holders etc. £52.04

Saxon Computing

The very successful Figure database/business graphics program, originally written for the Sinclair Spectrum, has now been adapted for the 64 and will be available, price £86.95 including VAT

In each of the past four years Commodore has held a Computer Show in London. Since the first show in 1980 attendance figures have grown from 5,000 to last year's 25,000. This has made it the premier event of its kind; and this year Commodore is "at least 40,000 committed users" at the Shows in London and Leeds.



Stack Computer Services Ltd

Two products which, it is claimed, can LOAD and SAVE cassette programs up to seven times quicker than normal, also adding machine-code monitor and Hex calculator/converter, head a range of Stack cartridges for the 64

Arrow costs £39.95 while SuperArrow which also includes assembler/disassembler, costs £44.65. Other products include disk compiler (£22.94), Help with 20 additional commands, disassembler and monitor (£26.75) and Superhelp (£40.55).

Supersoft

New games, including Interdictor Pilot, a space simulator written by an RAF pilot, and Star Command, plus, on the business side, the very powerful new Viralcad3. A number of their top games are now available on disk, at £8.95 or less

Tirth

A range of six Crompton computer desks, workstations and printer stands, all with concealed wiring behind a hinged cable tray and requiring only one 13-amp connection for up to four devices, will be shown by Tirth. The desks are castor-mounted (glide pads available optionally) and have paper-handling facility



1980



1981



1982



1983



1984

GEMINI Serious Software

FOR THE
COMMODORE
64.

A REPORT TO THE BOARD
March 1988 10:30:15 AM

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1

Page 1 of 1



Cashbook

Ideal for sole traders, partnerships and Limited Companies

Written by practising Chartered Accountants. Includes VAT accounting module for users operating the VAT Special Rates scheme. Accepts data from manual purchases and sales ledgers where necessary. Records all income and expenditure and produces full analytical summaries. Bank and Cash account balances. VAT summary and Trial Balance with full audit trail.

1 Database

The No. 1 menu driven, user friendly multi purpose Data Management system with the following features: Dynamic Memory management which allows the huge potential of the 64's memory to be fully used. Search and calculate facility which permits numeric field calculations to be updated by any common arithmetic factor. Searches on multiple selection criteria and high precision sorting. Professional standard record verification prior to entry for greater accuracy.

Final Accounts

Includes Journal entry facility which allows adjustments to be made prior to printing Profit and Loss Account and Balance Sheet. Produces Balance Sheet complete with comparative or budget figures and notes to accounts. Based on Gemini's well proven BBC Final Accounts program thousands of which are in daily use, many in the offices of Chartered Accountants. Interfaces with Cash Book when required but also acts as a stand alone program.



Home Accounts

A superb rewrite for the 64 of Gemini's famous program for the BBC - now enhanced with extra features. Budget for all aspects of home hold and personal expenditures for each month of the year, and then record and compare actual expenditure as it happens. Complete interactive bank account database with the ability to automate standing order debits. Credit cards supported. Full printer options. Graphic plotting facility to display levels and trends of expenses, at a glance. Highly recommended for putting your 64 to serious work!

Custom software is available from larger branches of Home, W R Smith, and most good software shops. Or telephone Gemini for immediate despatch quoting your Account. Visa or American Express card welcome. Telephone (0796) 385145/285525. Alternatively send your cheque or Postal Order made payable to Gemini Marketing Ltd.

Please send the following Gemini Commodore 64 programs

Cashbook Complete ☐ Disk ☐ £39.95

Final Accounts Complete ☐ Disk ☐ £39.95

Database Complete ☐ £19.95. Disk ☐ £29.95

Home Accounts Complete ☐ £19.95. Disk ☐ £29.95

(Please tick boxes as required.)

Name

Address

Credit Card No

Signature

Amount/Visa-American Express (Please attach)

Gemini Marketing Ltd, 18a Littleham Road, Exmouth, Devon EX8 2QG

Gemini are one of the oldest and most experienced software houses and support all their software with professional documentation, also by assisting customers with prompt after-sales service. If you have purchased any of our software and require advice or help, please do not hesitate to ring or write. Technical advice is always on hand.

Gemini products are distributed by:

Computer Knowledge, Micro Dealer UK Ltd, Diamond Bytes PLC, Tiger Distributors, Wrodsbridge Ltd, Paraziti & Davies, Everman Computers (UK), Welmers Ltd, Lightning Records and Pilsmer Ltd.

GEMINI

Gemini Marketing Limited

18a Littleham Road, Exmouth, Devon EX8 2QG England

How to get there

Hammer-smith is in West London, of course, which makes the place pretty convenient from just about all directions except East Anglia and North East London. Driving there isn't too bad; the public transport services are excellent.

By car

Getting to the Cusard International Hotel can appear daunting and is the subject of numerous apocryphal stories about haggard drivers circulating feverishly around the Broadway looking for a way to it. But in reality it's not too difficult.

The main hotel entrance is in Shortlands, and that's a two-way road connecting Talgarth Road and Hammer-smith Road.

Coming from Earls Court and Central London you aim for the A4 and follow signs to Heathrow, Bristol etc until you reach the Hammer-smith Flyover. Otherwise the next possible exit is a couple of miles further on. So get into the left-hand lane and take the side road signposted 'Hammer-smith'; and at the next opportunity, turn right and make a U turn under the flyover. That puts you briefly on Talgarth Road going the other way; Shortlands is the first left.

Coming from Kensington and the West End, drive through High Street Ken and past Olympia. You're then on Hammer-smith Road without trying; Shortlands is the last turning on the left before you reach the ugly kingsize roundabout at Hammer-smith Broadway.

Coming from the West you stick with the A4 until you're offered the Hammer-smith and Shepherd's Bush exit just before the flyover. Again, don't miss it; it's tricky to find your way back again! You follow the slip road on the Broadway, go right round

the roundabout past the tube stations, and don't aim for Kensington - it might look the obvious route from the map, but there's no right turn into Shortlands from that direction. Instead take the next exit signposted 'Central London'. This puts you on to Talgarth Road and Shortlands is the first left.

Coming from Shepherd's Bush and the North you aim for the Broadway, avoid the temptation of the Kensington direction, and follow the Central London sign again; with Shortlands the first left.

Car parking is in theory available at the Hotel itself - there's an NCP car park under it - but most of the space is likely to be taken by exhibitors and the Hotel's regular guests.

There are two other decent-sized car parks locally: one is off Queen Caroline Street (get on to the Broadway and take the exit after the Odeon), the other is behind the new shopping precinct called Kings Mall (take the King Street exit from the Broadway and follow the signs around to it

- it's about five minutes' walk from the hotel).

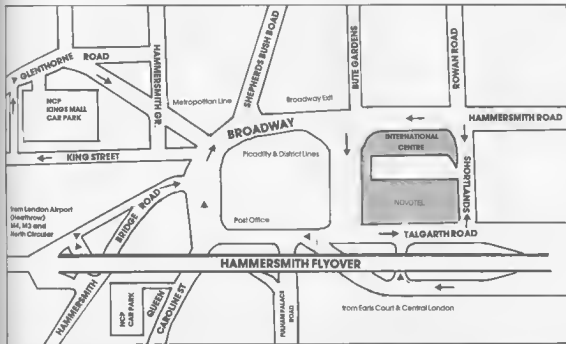
Alternatively you might just be lucky and find a space in some side-street. Your best bet is probably in the mass of streets just North of Hammer-smith Road.

By tube

This is the obvious way to come if you live near a Piccadilly, District or Metropolitan Line station. On the Piccadilly and District Lines you look for the 'Broadway' exit from Hammer-smith station, turn right past the Clarendon pub and search for the subway that gets you under the Broadway itself.

The Metropolitan Line exit is on the North side of the Broadway, so turn left and brave the traffic at the foot of Shepherd's Bush Road and try for the island of office buildings which also contains the Cusard.

Hammer-smith is served by dozens of buses, too



T3ntafida

6566 Video - Sprite Registers

| Sprite 0 | Sprite 7 | | Sprite 0 | Sprite 7 |
|-------------|-------------|----------|-------------|-------------|
| D000 | D00E | | X | 53248 53262 |
| D001 | D00F | Position | Y | 53249 53263 |
| D027 | D02E | Colour | | 53287 53294 |

Sprite bit positions

| | 7 | 8 | 5 | 4 | 3 | 2 | 1 | 0 | |
|------|---|---|---|---|---|---|---|---|--|
| D010 | | | | | | | | | X-position high 53284 |
| D015 | | | | | | | | | Sprite enable 53269 |
| D017 | | | | | | | | | Y-expand 53271 |
| D01B | | | | | | | | | Background priority 53275 |
| D01C | | | | | | | | | Multicolour 53278 |
| D01D | | | | | | | | | X-expand 53277 |
| D01E | | | | | | | | | Interrupt: sprite collision 53278 |
| D01F | | | | | | | | | Interrupt: sprite/background collision 53279 |

6566 Video - Control and Misc Registers

| | | | | | | |
|------|-----------------|---------|----------------|---------------|----------|---------|
| D011 | Extend Colour | Bit Map | Display Enable | Row Select | Y-scroll | 53286 |
| D012 | Raster register | | | | | 53266 |
| D013 | Light Pen input | | | | | X 53267 |
| D014 | | | | | | Y 53268 |
| D016 | X | Reset | Multi-Colour | Column Select | X-scroll | 53270 |

| | | | | | | | | |
|------|-----------------------|-----------|-----------|-----------|----------------|-------|------|-------|
| D01B | Screen (Video Matrix) | | | | Character Base | | X | 53272 |
| | vm13 | vm12 | vm11 | vm10 | cb13 | cb12 | cb11 | |
| D019 | IRO | IRQ sense | | LP | SSC | SBC | RST | 53273 |
| | IRO enable | | Light Pen | Collision | Sprite Back | Reatr | | 53274 |

Colour Registers

| | | |
|------|--------------------------|-------|
| D020 | Exterior | 53280 |
| D021 | Background no. 0 | 53281 |
| D022 | Background no. 1 | 53282 |
| D023 | Background no. 2 | 53283 |
| D024 | Background no. 3 | 53284 |
| D025 | Sprite Multicolour no. 0 | 53285 |
| D026 | Sprite Multicolour no. 1 | 53286 |

in and off, we might as well add speed effects, too.

```

650 IF PEEK(E) = E8 GOTO 800
670 REM Thrust sound
680 POKE E,D0:IF E0 = 1 THEN
  POKE 54278,0:GOTO 900
690 POKE 54273,0:POKE
  54276,129
680 IF E1 = B9 GOTO 630
610 IF = B1:K = B0:(A5:B9):#
  129:POKE 54273,0:POKE
  54276,K

```

Drivry thrust, or lateral thrust - they all represent acceleration. We add acceleration to our speed to get new speed, then we add speed to position to get new positions.

```

620 REM let's move til
630 Y0 = Y0 + V1:Y0 = Y0 + B1

```

We prevent the player going off screen, we'll screen a field force around the screen boundary. If we let it, you'll bounce - that is, we speed will flip to the opposite direction.

We'll fudge a bit. The 'high bit' of the X position is tricky to set in Basic: there's often a fucker during the moment that we set the low and high values. So let's limit the player's travel to the left-hand end: we'll quarter of the screen and avoid the problem.

```

640 REM field force boundaries

```

```

650 IF Y < 30 THEN Y0 = A5:(Y0)
660 IF Y < 20 THEN Y0 = A5:(Y0)
670 IF Y < 240 THEN Y0 = --
  A5:(Y0)

```

```

680 Y = Y + V0:Y = Y + B0

```

We move the craft simply by changing its coordinates. Then we check the collision register to see if we've hit anything.

There's a problem here. It seems that collision is noted when the screen is drawn, not when you set the coordinates. Basic isn't super fast, but it could be fast enough to miss that collision. If you watch the program closely, you will see that the rocket sometimes 'bounces' after it goes below ground level.

There's something else that contributes to that Basic, being slow, may need to move the rocket several pixels in distance at a time. So rather than just touching the ground and stopping, the rocket may also leap from just above the grounds to well into it - if it's going quite fast.

```

690 REM move craft, check
  collision
700 POKE B0,0:POKE Y0,Y:
  POKE X1,0:POKE Y1,Y
710 C = PEEK(C0):IF C and 1 = 0
  GOTO 470

```

Collision says we've hit something. We can look at our

height (Y position) to see if it's the ground. If not, it must be a mine.

```

720 IF Y > 218 GOTO 780
730 IF Y + V0 < 218 GOTO 470

```

We could do a sensational explosion here - but we'd need to define more sprites, or modify the one we've got. Try your hand at it if you like. For the moment, having a mine will cause the rocket to disappear.

```

740 REM we seem to have hit a
  mine
750 PRINT CHR$(19);
  "CRASHED!":POKE E,0
760 GOTO 820

```

I decided arbitrarily to make the craft bounce if it hits too fast. If you'd rather crash, go ahead and do your destructive thing. See the previous note.

```

770 REM hit the deck... too fast?
780 IF Y0 > 1 OR Y0 < 3 THEN Y0
  = -A5:(Y0):GOTO 470
790 PRINT CHR$(19);
  "LANDED!":POKE E,1

```

Because we may overshoot the ground and dip a little hole, we'll reset the vertical position of a successfully landed rocket to look none. Then we wind up the game or play another one.

```

800 POKE Y0,219
810 REM all done - shut down
820 POKE 54278,0:POKE 54296,0
830 PRINT "WANT TO TRY
  AGAIN?";
840 GOTO 340

```

That's it. There are many features you can add - such as a fuel supply.

We could also have done a pretty background in high-resolution graphics; but this would make it difficult to add features (if you wish) like meter readouts. In fact, I've used very dull graphics - you may consider that a challenge.

We've done a simple sprite exercise. It's really not hard, even in Basic. In machine code it's almost too easy! You'll find that you need to slow your program down or everything will happen too fast. Graphics is there, and it's not hard to use. A little experimentation and practice and you can animate a picture that's worth a thousand words.

Next time, we'll talk about using the interrupt for 'split screen' effects. This allows us to do some new things: we can even begin to break some of the rules we've previously set down.

Copyright © Ben Waterfield

TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wodge of priceless information and indispensable advice. There's even the odd useful tip as well.



Dear Tommy, Just before Christmas I sold my Vic 20 and bought the Commodore 64 and 1541 disk drive. I was pleased with both and the disk was a lot easier and faster to use than the tape which I had with the Vic. The trouble now is that I have been looking for some software on disk for the machine and it seems to be very hard to find. Looking through the Vicsoft catalogue and Commodore User I found that nearly every program was either on tape or else no details were even given of the medium used - I actually only found one firm which did a game on disk for the Commodore 64. That is not much of a choice when looking for software.

Please could you tell me generally about the availability of software on disk? I want to know whether I need to buy a Datamaster as well to have access to a reasonable selection of software.

On the subject of disks, could you tell me if the disk drive's red light is supposed to flash occasionally after the loading has begun? And are the clicking sounds which occur during loading normal? As you know the drive manual does not answer such questions.

If you think about the comparative sizes of the market for cassette based games you will realise why there are so few disk based games around. Only a small percentage of Commodore users will have disks; nearly 100 per cent (excluding yourself) have cassette recorders. No software house is going to restrict the potential market for their software, nor produce a more expensive product that is not going to move well.

Much of the business type of software such as word processors is on disk because it is difficult to use without having a disk to store all the data on. Games are a very different matter, and it is probably true to say that if a supplier does not state which medium the software is on, it is probably available only on cassette.

Having said that you could always try writing to the software suppliers in question: they may be prepared to supply a game (or even games) on disk if asked, be prepared to spend more than the equivalent cassette version though - disks cost a lot more than cassettes. I realise that £40 plus seems a lot to pay for a recorder when you aren't going to use it that much, but for the full range of games software there really isn't much choice.

With regard to the little red light on your drive, the flashing and the clicking normally indicate that the read head is searching for the next sector of the disk where the program is stored and is quite normal. However, if this occurs a lot it probably means that your files are scattered about on the disk making the reading very inefficient. Doing a 'Validate' will reorganise the program and data storage and reduce the head movement when loading a file. (See the disk games review in this issue - Ed)

Dear Tommy, A number of technical questions for you first, can't you (or somebody else) please write as plebe a pretty utility to dump a hi-res screen to printer? The Koolaid produces the most fancy graphics you want, but you cannot print them. The difference between a novelty drawing program and a usable, professional graphics package is precisely the ability to produce prints. Maybe it could be hidden away in the cassette buffer, WAITING for the "P" key to produce a print? ... (Xist, list...)

Second, I am using a Stack Motherboard to keep my cartridge semi-permanently plugged in. This causes a problem: when you switch on, the Kernal start-up routine

checks to see if anything has been plugged in and passes control to the relevant ROM. If all the ROMs have been switched out, however, some stupid little switch is still set somewhere. This means that if I want to use (say) Easy Script (which apparently uses the same address), I must unplug the Motherboard before I load the program.

The million dollar question is this: surely there must be some clever way of locking the 64 and the program that nothing has been plugged in? After all, the Motherboard is dead when all the ROMs are switched out, so there cannot be any conflict.

Building on question 2, surely there is a way software-wise to switch off the 64, giving me time to switch my ROMs? Now about a little program (combined with the hi-res dump?) that allows me to do all this? Or am I now a typical user?

With regard to your first query you don't say which printer you are using; a 'general purpose routine' is a little more difficult to write, although not impossible - keep your eyes peeled for an Epson dump routine in the (hopefully) not-too-distant future.

As for the Motherboard problem, I was caught in exactly the same way. The problem is that it is not just a question of turning off the power to the cartridge, but disconnecting the EPROM and GAME lines as well. This involves fitting a DFDY switch on the board which will break these lines if no cartridges are to be selected.

Stack says that the board is designed to be removed if you want a 'no cartridge' situation, but the company is also prepared to fit the necessary switch to the board for £5 plus £1.50 p.p.p. Presumably anyone intending to buy a board can ask for the modification to be done before sending off at a cost of just £5 extra.

If you wish to do the mod yourself you must break the two lines near the gold contacts on lines 8 and 9. Connect wires from the back of the contacts (ensuring you allow the board to rest in the socket correctly) to a DFDY switch at the

back of the board somewhere then connect from the other side of the switch to contacts 8 and 9 on the nearest socket.

On your last question, the answer depends on whether you just want to change cartridges that are already plugged in or to add a new cartridge to the board. If it is the latter then the answer is no, you must power down before adding or removing any cartridge.

If however you wish to swap ROMs that are already plugged in, try their switch off the current ROM, switch on the required ROM and momentarily connect pins 1 and 3 on the User port. This will have the effect of doing a cold start without affecting any data or machine code in memory, although the Basic pointers are reset. You can set the reset switch permanently, or wire up a user port connector with a small push-switch attached.

The reason you can't do a software cold start is that switching ROMs with the power on sometimes causes a crash; the hardware reset will always work. (Note the switch must be a non-latching type.) It is also expedient to point out that there is a faint chance that you may damage a cartridge by switching it with the power on, unlikely, but you must assess the risk against the need.

Dear Tommy, I have a few 64 questions:

- At what address does a Basic program start (i.e. after you've LOADED it)?
- How can I find the end address of a Basic program using a monitor?
- If I LOAD "FROGA" A.I how can I find the starting and ending addresses?

A Basic program normally starts at location 2048. You can find the start address by this statement:

```
PRINT PEEK (43)+PEEK(44)*256
```

Similarly, the end address is given by

```
PRINT PEEK(45)+PEEK(46)*256
```




SCOPE COMPILES
TRUE MACHINE CODE TO
RUN TOTALLY INDEPENDENTLY!



Unlock Your Imagination

SCOPE The GAMES DESIGNER

WITH SCOPE YOU CAN WRITE TRULY
ORIGINAL MACHINE CODE ACTION!

£17.95
£18.95
disc



INCLUDES

- ★ Comprehensive Instruction Manual
- ★ Tape Demo Routines
- ★ Free Membership of SCOPE User's Club
- ★ Programmer's Hot-Line phone

THIS REMARKABLE PRODUCT will revolutionise programming on the *Commodore 64*. By using the simple plain English commands you can now write and publish your own games to compete with the professionals. Powerful yet easy to use SCOPE will benefit beginner and competent programmer. You will handle all aspects of **Graphics, Sprites, Colour, Sound, Music & Animation.** All in original super-fast machine code.

COMMODORE 64

Get the SCOPE NOW and UNLOCK YOUR IMAGINATION!
Pay by: ☐ Cash ☐ Bank Transfer ☐ Credit Card
C. Manning & Co. Ltd. 104 Victoria Road, Basingstoke, Hants. RG24 9 0SP
SCOPE 64 tape £18.95
SCOPE 64 disc £17.95

Please tick me ☐ (Cheques payable to ISP Marketing Ltd)
Name _____ Address _____
Dealer Enquiries Welcome





Dear Tommy, I have recently acquired a Commodore 64 computer and being completely new to computers I need a little advice. The questions I have are on POKing and PEKking in general. Having tried the program in the new manual on creating the balloon sprite POKEs 2042,13 I altered it to POKE 2042,16; of course nothing happened, and I lost the CLR/EDMC function and could not return the screen without reticking off the computer.

What I want to know is have I disturbed anything in the computer, and how do I know where to poke and where not to poke, and what does the 13th area of memory actually refer to in this program? Also, how do I actually use the PEKE command?

One of the problems with POKing is that the computer will happily allow you to change all sorts of vital memory locations without any warning of the disasters which can befall you. But, the first thing to point out is that you cannot damage anything inside the computer although you may well have to switch off and then on to reset the computer, thus losing any program memory.

With regard to your specific problem, each sprite needs 64 bytes of memory to define it; but this can be anywhere in a 16K block of memory. The locations 2040 to 2047 are known as the Sprite Data pointers; they tell the computer where the sprites have been defined. In your case location 2042 indicates where the data for sprite 0 is held.

To find the actual address (assuming the screen area has not been moved), you need to calculate the start address of sprite data as $X * 64$, where X is the number to POKE into 2042 (or another sprite pointer location). Thus POKing 13 means that the sprite data is held in 54 locations at 832 to 893, which is the cassette buffer. By POKing 16 you have told the computer to put the sprite data into locations 940 to 1003, which happens to be a rather vital part of the Operating

System area; hence your rather dramatic crash! To be completely safe, only POKE values between 13 and 15 (which all use the cassette buffer) or values between 192 and 235 (if you have moved the top of memory pointers first with POKE 86,48 POKE 55,0 CLR). The latter method will give you plenty of room for sprites, but will cut down your program area somewhat.

To really find out where you can and can't POKE, I recommend that you purchase either the Programmers Reference Manual which gives a full memory map or one of the many books available on the 64 which gives the same information.

As for the PEKE command, the syntax is as follows: $K+PEEK(2042)$. This will make K equal to whatever value is contained in address 2042. In short, POKE puts a new value into an address; PEEK reads the value contained in an address.

Dear Tommy, I have a Vic with one 8K and one 16K cartridge. How do I use them together?

When using both an 8K RAM and a 16K RAM pack, the links inside the 8K cartridge must be altered to fit the RAM into the third block of expansion memory. This is because 16K always fits into blocks 1 and 2 in the memory map and cannot be altered.

To change the links on a Commodore RAM pack, open the cartridge by undoing the Philips screw in the bottom of the unit; then use a very fine screwdriver to unclip two small plastic lugs in the rear of the case. You must then ease the case apart, trying to disengage the front lugs without breaking them (that's the difficult bit). Having opened the case you will see a small switch-bank with four switches, no.1 will be ON and the rest will be OFF. To change the RAM to fit into block 3, turn 1 OFF and turn 3 ON (if you have two 8K RAMs you can turn 2 ON to fit one of the cartridges into block 2). Finally, fit the case back together, not forgetting the screw. A word of warning: make sure only one of the switches is ON at any time - otherwise the cartridge will not function correctly.

For those who like to experiment, setting switch 4 ON will fit the RAM into the ROM area starting at 40950 (A500) giving you an 8K area for machine code or data (but not basic programs, I'm afraid).

Dear Tommy, I would be grateful to you for some advice on the use of a disk drive with the Vic

20. It seems that with the slow cassette operation on this computer that the loading of programs, especially of 18K, can be very tedious indeed. One would imagine therefore that the obvious solution would be a disk drive. Since very little software is produced on disk for the Vic, clearly programs - including those produced commercially - would need to be transferred to disk for it to be worthwhile contemplating such a large purchase.

It is therefore very surprising to me that I have never seen any articles dealing with this matter, regarding either feasibility or advice on how it may be done. Could you deal with this in one of your future columns?

There are a lot of points raised in this letter! The simplest case is copying one of your own Basic programs which does not use any files once it is running. All you have to do then is to load it from the tape deck and save it on to the disk.

The same applies if you use assembler programs - except that you need a machine-code monitor to save assembler programs properly, but if you are already writing programs in assembly language you will know all about that.

If your program uses data files, or loads other programs, then every file access has to be changed from device number 1 (the tape unit) to 5 (the disk). There are a few extra bugs which have to be done as well, because opening a data file on a disk is not quite the same as on the cassette deck. But once you have bought your disk drive and learnt how to use it, all that side will become easy.

Your problems start, though, if you want to transfer a commercially-produced program to disk. For a start it may be protected, in which case transfer (like any other form of copying) will be quite difficult (practically as well as ethically). If the program is not protected, you will be able to copy it to disk, but if it uses data files you will be faced with the task of changing the program to use disk files rather than cassette files.

Many software producers will swap a tape version of a program for a disk version, usually for a small fee - which may not be so small if, as often happens, the disk version is more powerful than the tape version. But then there may not be a disk version available, which is especially the case for games programs.

To sum up, transferring a

number of programs to disk could well be a tedious job; and this task has indeed to be taken into consideration when weighing up the pros and cons of moving on to disk.

Dear Tommy, For almost two years now I have been using the Vic-20 and I still find its keyboard very fine to work with. Some keys tend to 'bounce' though: when I type a single character, two of them appeared on the screen. I wonder whether this is caused by dust (shame on me: I never used a dust cover) or could it be something in the hardware? Anyhow, do you happen to know a cure for this?

This problem is fairly common on all Commodore computers, and is indeed caused by dust getting down in between the keys.

Fortunately, it is fairly easy to fix. First of all, unplug everything - especially the power lead. If you turn your Vic upside down and undo the three small screws holding the top and bottom halves of the body together, you will be able to lift the bottom off. There are two cables which need to be undone before the two parts will separate completely. One is the keyboard itself, the other goes to the 'POWER' LED. Make sure you remember where they come from, and notice that you must make a note of which way round the LED cable was plugged in!

Now on the brown back of the keyboard you will see a number of very small screws. If you undo these (and put them where you won't lose them), you can lift off the back of the keyboard.

Wipe the contacts with a clean cloth, making sure it doesn't leave bits of lint inside the keyboard, but should fix the problem. If not (or if you don't feel confident about ripping your Vic apart), then it is back to the jolly old Commodore dealer with it.

Dear Tommy, Is there a way of using the INPUT statement that removes the question mark which automatically follows it?

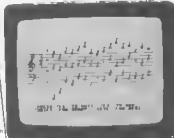
There is indeed - a couple of ways. In fact, but this is the simplest: use INPUT# having previously OPENed the keyboard (which is device number 0). So you might have something like this:

```
100 OPEN 1: PRINT "INPUT"
13: INPUT# 1, A$
1010 PRINT "and" A$
1020 CLOSE 1
```

NEW THE COMPOSER 64

One of the most sophisticated music Composer/Synthesiser packages available today, utilising every facility of the Commodore 64.

Now with this revolutionary package anyone can enjoy music. Even if you know nothing about music, the Composer 64 allows you to create a tune or copy directly from sheet music by writing notes onto the staves. It will help you to understand music, to compose complex pieces - and it presents an exciting & stimulating challenge to those with advanced musical skills.



Pre-programmed instruments

- ORGAN
- PIANO
- VIOLIN
- GUITAR
- WOODWIND
- HARP/CHORD etc.

• make up your own instrument sounds

FEATURES INCLUDE

- 3 completely independent voices
- Up to 1500 notes possible
- Range of 6 octaves
- Time signatures & Repeats
- Rhythms
- Movable staves
- Full musical quality control
- Triangle wave
- Full spectrum wave, pulse wave, white noise
- Any combination to produce up to 18 different wave forms
- Full editing & merge facility
- Tempo control
- Notes can be input from one voice to a number
- Full colour high resolution screen with changeable note colours
- Full load & save facility on tape or disc
- Full range of notes from semi notes (quarter) to semi tone

HOW TO ORDER

Send cheque/PO to the address opposite. All orders despatched by First Class Return Post. Full money-back guarantee if not delighted.

The Composer 64

Introductory Price:

£8.95 INC. VAT

£ P P

For the Commodore 64

Easy to use, simple to operate and complete with instructions, it is suitable for everyone, regardless of level of musical knowledge - within minutes you can hear the computer play back your favourite tunes.

**Vulcan Computing Dept(C1)
32, Guildford Road,
Farnham, Surrey, GU9 9QB.
Tel: Farnham (0252) 724182.
DEALER ENQUIRIES WELCOME**

DUCKWORTH HOME COMPUTING

All books written by Peter Gerrard, former editor of Commodore Computing International, author of two top-selling adventure games for the Commodore 64, or by Kevin Bergin, both are regular contributors to Personal Computer News, Which Micro? and Software Review.

SPIRITES & SOUND ON THE COMMODORE 64

by Peter Gerrard

A complete guide to using the extraordinary features of the Commodore 64, together with a full working explanation of the chips that make it possible, the 6581 Sound Interface Device and the 6566 Video Interface Chip, together with the processor that makes it all tick, the 6510.

Sections on programming your own musical instruments, producing sprites and programmable character animation, makes this the guide for users of the Commodore 64 who want to get the most from the special features of their computer.

£6.95

COMMODORE 64 GAMES by Kevin Bergin

This is a collection of 21 exciting programs specially written for the Commodore 64, including Golf, Snake, Air Attack, Draughts, Car Dodge, Tank Battle, and Minesweeper. An adventure game is also included as well as a program to enable you to devise your own version of Basic by re-defining keywords. Each program is accompanied by notes on its structure to enable you to modify or extend it.

£6.95

Other titles in the series include *Using the 64*, *18 Simple Electronic Projects for the VIC*, *Will You Still Love Me When I'm 64*, *Advanced Basic & Machine Code Programming on the VIC* and *Advanced Basic & Machine Code Programming on the 64*.

Write in for a descriptive leaflet (with details of cassettes).



DUCKWORTH

The Old Piano Factory, 43 Gloucester Crescent, London NW1 7DY
Tel: 01-465 3444

CBM 64— VIC PRINTER

For only £79.90 fully inc!

"Very good...and good value too" Commodore User Review Dec 1983. Probably the world's cheapest Vic/64 Printer, but better print quality than printers three times the price! Put the superb ALPHACOM-32 Printer (or ZX-Printer) on your Vic/64 using the

SOFTX PRINTERFACE

Printerface alone only £20.95 fully inc!
Alphacom system complete only £79.90 fully inc!
Vic Wordprocessor package only £9.95 fully inc!
(64 version T.B.A.)

- Alphacom-32 printer already established in W.R. Smiths, John Menzies... £22.95
- Prints in blue or black on economical white paper (weight 1.3g per sheet)
- Very robust and hardwearing! Olives consistent, high quality print
- Silent but fast - up to 90 characters per second
- Full Vic/64 graphics as well as most defined characters
- 64 volume printer with superb formatting facilities
- Excellent high resolution graphics
- Operating commands same as Commodore Vic/64 printer
- Works as Sinclair's ZX PRINTER (Needs ZX-power supply... £9.99 fully inc!)
- Fast delivery - friendly backup - simple to use!
- Not a plainer, but a fast dot-matrix printer

Send orders/enquiries to:

SOFTX
Computer Accessories

Dept U6
SOFTX COMPUTERS, 37 Wheaton Rd,
Bournemouth BH1 1JX, Tel 0202 422028.

For VIC 20 and CBM 64 Users

SIP ACCOUNTING SYSTEM

Highly comprehensive program designed for 16K, 24K, VIC20 & Printer, 40 col VIC20, CBM 64. Makes so ideal introduction for you and your staff to the world of computer accounts

Features include:

- Menu driven - simplicity to use!
- Up to 120 accounts per tape
- Day book
- Sales and purchase ledger (or just 1 type)
- Invoice print mode is available as extra
- Documents print
- [In a/c of just one company]
- Overhead account file mode (see above)
- Cost passed entry to next stage to go
- Cash economy - debitors and creditors
- VAT entry (on or gross)
- PLUS many, many more features
- - all in ONE program.

RIPAC20 VIC20 16 24K Type Based
RIPAC20 VIC20 16/40K Type Based
RIPAC64 VIC20 16 24K + 40 col on-line
RIPALM - LBM64 Type Based
RIPDC64 CBM64 Disc Based

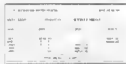
Dept Version £24.95 + VAT

Disc Version £20.95 + VAT

Price includes comprehensive manual

See data for tape versions.

1410-1428-1436/CP 64 VIC printer required for all programs.



Printer plights

designed to save space
designed to save space
designed to save space
designed to save space
designed to save space
designed to save space
designed to save space
designed to save space
designed to save space
designed to save space

INVOICE PRINT MODULE

Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space
Advised to save space

SIP/CPM VIC20 Type Based

SIP/CPM VIC20 Disc Based

SIP/CPM CBM64 Type Based

SIP/CPM CBM64 Disc Based

Tape Version £24.95 + VAT

Disc Version £20.95 + VAT

Please specify machine size when ordering

Available direct or from leading software dealers

Send orders to see for further

Information please write to: graham

1410-1428-1436/CP 64 VIC printer required for all programs.

1410-1428-1436/CP 64 VIC printer required for all programs.



Dear Tommy, Please could you help me with a very annoying bug which is occurring on my ZX Vic-20. I have been trying to run a 24K program but it persists in crashing with a NEXT WITHOUT FOR error at the same point. As it is happening in a small loop this does not seem possible. Before this, however, it has read 67 DATA statements and performed over 200 COSUB RETURNs with no error loops.

I have carried out tests but there are no NEXT or RETURN statements missing. If I get round this bug the program physically slows down then crashes with an OUT OF

MEMORY error even though there are 4K bytes unused. I have a sneaking suspicion that the stack is overflowing and that this is where the problem lies.

Could you please advise me whether I have a hardware failure? Or how I can reset the stack and point it, if this is the area that is causing my troubles?

It is extremely unlikely that this is caused by a hardware fault. This sort of problem is always caused by either jumping out of a FOR-loop or a subroutine, nearly always the former. The only safe way to leave a FOR-loop before it has finished is this:

```
100 FOR I=1 TO 100
110 ...
120 IF .. THEN I=100: GOTO 140
```

If you just jump straight to 150 you are asking for trouble. The problem is that that may not have any effect until much later in the program, when it is past to impossible

to find out where the original problem lies.

If you get an OUT OF MEMORY error when FRE(0) shows that there is still plenty of free memory available, you are jumping out of a subroutine instead of using a RETURN. This is normally easier to find than the first problem.

The best solution to both problems is tidy programming. Each FOR loop should have only one NEXT statement; if there are several places where you want to do a NEXT, then jump to the one and only NEXT statement. Similarly, each subroutine should have only one RETURN. You should never jump out of a FOR-loop or a subroutine. If you do, the result can be chaos!

It is not possible to reset the processor's stack pointer from Basic, by the way.

Dear Tommy, Could you please explain the purpose of the memory locations 36390 - 37135 on the Vic-20 computer.

What can be done by poking into this region? The Vic Revealed and Mastering the Vic-20 do nothing to explain this area.

I'm afraid that poking into this area will not achieve much because there is nothing there! This is just an empty bit of memory in between the VIC chip and the first PIA.

Dear Tommy, I recently discovered that by pressing the CTRL key and R, reverse graphics could be obtained on my Vic-20. What's more, it works within quotation marks. I had always thought that the only way of obtaining reverse graphics on the Vic was to press CTRL and 9 together. Have I made a new discovery?

This is just a little quirk in the way the Vic looks at the keyboard. Both CTRL-9 and CTRL-R in fact produce the same character, CHR\$(16).

FRUSTRATED!

by the problems of attaching Centronics I/F printers to the CBM 64 and VIC 20?

Don't muck about -

- * Waiting an age while the printer prints a page
- * Converting 'CBM CODES' to ASCII
- * Getting clumsy printer drivers to work on your system
- * Trying to understand listings made on ASCII printers
- * Losing data at the end of lines, C.R., and off the end of lines
- * Repeatedly dumping on the printer for multiple copies

Solves all these problems - and more with the S.P.B. Serial IEEE Printer Buffer Interface
FEATURES * 11766 character buffer * Full buffer control

- * Code conversion * Repeat Mode (up to 255 times) *
- * List Mode (Converts listing to an easy to read form)
- * Emulates compatible serial printer commands
- * Manual control of printing

Easy to use * Dump your text to the printer in seconds using standard I/O commands (OPEN n, PRINT#n, CMDn etc) and let the printer get on with it! USE YOUR COMPUTER FOR COMPUTING!

TWO VERSIONS AVAILABLE:-

Lwith centronics compatible interface
Lwith keyboard scanner interface for direct connection of cheap daisy-wheel typewriters for low-cost letter quality word processing

SEND:
Self addressed envelope
fee full details and
order form

W.J. Salter
'Braveasy'
Trevogay, Trebrurick,
Wadebridge, Cornwall
PL27 7LE

DON'T JUST PLAY GAMES! EDUCATIONAL SOFTWARE for the VIC-20 UNEXPANDED

Physics
Biology
Maths
Computer Studies
Science
Maths
Mathematics
Arithmetic
Reasoning
Knowledge

O level/CSE Revision Aid
O Level/CSE Revision Aid
CSE Revision
O Level/CSE Revision Aid
Revision 12/14 Years
Revision 12/14 Years
Revision 8/11 Years
Revision 7/10 Years
11+ Revision
Quiz 9/99 Years

Exceptional value at just £4.95 each post free

Immediate delivery by first class post

NO EXPANSION RAM NEEDED

Cheques! PO to.
Micro-De-Bug Consultancy
Dept CU, 60 Sir John's Road
Selly Park, Birmingham, B29 7ER
Tel: 021 472 7610

DEALER ENQUIRIES WELCOME

Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think - about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course, but anything that might be of specific relevance or general interest will make it to these pages.

Insights

Do owners of the Commodore VICMON machine-code monitor realise that there is an extra command available but not listed in the instructions?

It is a compare command to compare blocks of memory. Syntax is as follows:

.C(start), (end), (start2)

where start/end are the memory locations which will be compared with the memory beginning at start 2. For example, to compare \$2000 to \$4000 with \$9000:

.C 2000, 4000, 9000

The memory locations which do not match correctly will be printed on the screen.

Another unique discovery? Try this:

1 POKE 157,64
2 FOR A=1 TO 11: OPEN A,3:
NEXT

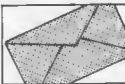
It works for both the Vic and 64! I had always wondered what the "V OERROR" error message was for and finally I discovered how to generate it (only in a program, not in direct mode). The numbered display corresponds to the table of error codes on page 210 of the Vic Programmer's Reference Guide or page 306 of the 64's.

Why is this message in ROM? Does anyone know? Perhaps it was for debugging purposes.

Try these alternative line replacements.

```
2 OPEN 0,0
or
2 OPEN 14,14
or
2 OPEN 1,3: OPEN 1,3
or
2 LOAD "",8
or
2 LOAD "",2
or
2 OPEN 1,0: CMD1
or
2 CMD 1
```

Kevin Smart, 13 Norman Crescent, Irvine, Ayrshire.



Alternative hi-res

I have just read Commodore User and noticed that you answered someone's question on how to create high resolution graphics on an expanded Vic. I have an alternative method which leaves the screen the same size and leaves either 6 or 10L.

```
10 POKE 43,1: POKE 44,32:
POKE 4192,0
20 POKE 441,0: POKE 442,32
30 POKE 448,0: POKE
38866,150
40 POKE 36866,240
50 PRINT "clear screen";
```

This should be used as a short loader, not in the main program; but it is very quick and does the job perfectly. The following lines will automatically load the next program.

```
50 POKE 531,78: POKE 632,111:
POKE 633,13
70 POKE 194,7: NEW
```

It is then possible to carry on as though you are using an unexpanded Vic - but don't poke 51, 52, 55 or 56.

I hope you publish my tip as I had a lot of bother figuring it out and it might be useful to someone!

Richard Iken, 14 Stratford Drive, Ainsdale, Walsall, West Midlands WS5 8LS

Cash Traders

Thank you for your detailed and workmanlike review of the above product. Some months have elapsed since we sent you the review copy - understandable in view of the thoroughness with which your reviewer carried out

his task - and we have made some enhancements.

The user can now record both purchases made on credit and subsequent payment with discounts taken. There is an appendix in the user guide listing the pre-set normal accounts. The system is now available on both disk and cassette and is still priced at £78.00 plus V.A.T.

Arnold L. Shaw, Quick-Count Ltd, 15 Neeld Crescent, London NW4

Disk device no. switch

We are getting an increasing number of enquiries from those wanting to use two 1541 disk drives with the Commodore 64, and I wonder whether I might help those of your readers who are struggling with Commodore's incorrect instructions on converting one drive to device number 9 instead of 8.

Take no notice of steps 5, 6, 7 and 8 on page 40 of the disk drive manual. The metal housing referred to does not exist in any of the 1541 drives we have seen, and nor do the jumpers allegedly "... on the left edge in the middle of the board". Instead, locate two small white circles in the approximate centre of the board which carry no numbers or identification. Inside each is a narrow track joining two semicircles, and these are the jumpers.

In true Commodore style, if you put the board the correct way up as indicated by the various printing on it, the order of the jumpers is not '1,2', but '2,1'. So in order to change the device number to 9, cut the track in the circle nearer the front of the disk drive. Cutting the other will change it to 10, or both will change it to 11. A touch of solder will take care of any changes of mind.

Be warned, though, that you will need a special utility even to make a security copy from one to the other. This has apparently sometimes been supplied with drives recently, but perhaps only by deal-

ers who have written their own. Also, there is almost no software yet which operates with two single drives, as opposed to a true dual drive using drives 1 and zero on the same device number. We have not made small revisions in our Simply File for 64 database system to allow its use with two single drives as well as dual drives, and will be happy to advise existing or new users. Our Simply Write word processor could already be used with dual or paired-single drives.

Brian Tregar, Simple Software Ltd, 15 Havelock Road, Brighton, Sussex BN1 8GL

Pocket money

I am annoyed to see that your latest Commodore magazine has no programs for the Commodore 64. Please could you put more programs in for the 64. I am twelve and buying the Commodore magazine takes up most of my pocket money and to find no programs makes me disappointed.

Andrew Taylor, Wauld cottage, 36 Millbank, Headcorn, Kent.

Logos

In response to Mr. W. J. Howard's letter in the March 1984 issue may I bring a Vic LOGO to your attention. It is called Turle Graphics and is produced by HES. I have had it for a few months and it is very good. It is supplied as a cartridge with a 72-page manual. The UK distributor is Maplin Electronics. A 64 version, Turle Graphics II is also available.

F. Well, 112 Quakers Lane, Potters Bar, Herts, EN5 1RG.



PARAMOUNT

SOFTWARE

for Connoisseurs with COMMODORES

COUNTDOWN

Time is important. Accuracy essential. Courage mandatory. But, above all, Nerve is the prime attribute needed for your mission as an agent in the crack S.M.U. A Superb Arcade / Graphical Adventure. VIC 20 8K or 16K Expansion. Keyboard or Joystick.

£5.50



OUTBACK

...an addictive game...the Graphics are very good indeed...there's also a lot of very good programming... Personal Computer News, Dec22, Jan 4 1984. Can you use the very sophisticated defence set up to beat off the cunning Swagmen?

Pure Machine Code Action. Fully Featured. Superb colour and Graphics.

A game with a difference.

Any VIC20 Joystick. COMMODORE 64 Keyboard or Joystick.

£5.50 & £7.50

CHOCABLOC

A fast moving, pure Machine Code action game, with Chocabloc our hero trying to sort out some Real Cool Choc Bars — until everything goes crazy and the action is on! Arcade standard. Fully Featured. Excellent sound and graphics. VIC 20 8K or 16K expansion. Keyboard or Joystick.

£6.50



MEGAWARZ

Where does your fantasy go when your mind leaves your body? Megawarz will take you there you can be sure. High resolution, multi-colour graphics. Sprite graphics. Synthesised. Pure Machine Code action. Arcade Standard. A magical planetary trip. COMMODORE 64 Keyboard or Joystick.

£7.50



JOGGER

Truly a jogger amongst joggers. If you have trotted with the rest, now run with the best. Machine Code action. Superlative sound. Creative Colour. A quality programme from Paramount. Any VIC 20 Joystick.

£5.50

Selected titles are available at **BOOTS, JOHN MENZIES, major department stores and computer stores nationwide.**

Dealer, export and distribution enquiries to **Bob Horsesham (Paramount)**

Tel: 0642 604 470 (day)
0642 316 211 (night)

Authorised distributors:

Centrosoft Ltd. - Tel: 021 620 7591
Tiger Distribution - Tel: 051 420 8088
Plummet Ltd - Tel: 0624 254412
Websters Software Ltd - Tel: 0483 62222

Mail order — despatched by return, post-paid. Please make cheques/P.O.s payable to:

PARAMOUNT SOFTWARE

67 Bishopton Lane, Stockton, Cleveland, TS18 1PU.

| | | | |
|------------|-------|-----|--------------|
| CHOCABLOC | £6.50 | [] | Name..... |
| OUTBACK | £5.50 | [] | Address..... |
| OUTBACK 64 | £7.50 | [] | |
| COUNTDOWN | £5.50 | [] | |
| MEGAWARZ | £7.50 | [] | |
| JOGGER | £5.50 | [] | |

I enclose cash/cheque/P.O. for £.....

Overseas orders please add £0 50 per item

CU APR

DISK GAMES

FOR THE  **commodore**

If you've got a 1541, you don't want to spend ages waiting for cassette games to load. Freed from the restraints of loading times, Audiogenic Disk Games can give you typically around 30K of machine code! More code means better games, better graphics and sound, more variation, and those little extra touches that you will come to expect from a game. Here are our first great releases!

FORBIDDEN FOREST

Forbidden Forest is more of a quest than just a game! The action takes place in a four dimensional scrolling forest landscape which many have entered, but none has returned. Yes, I did say **FOUR** dimensional. day fades into night as the action unfolds! The quest is to seek out and destroy the Demogorgon, mystic ruler of the Forbidden Forest. Before you can even set eyes on him you will have to contend with his army of fearsome creatures, including mutant spiders, showers of giant frogs, snakes, dragons, skeleton soldiers and more! You have only your trusty bow and arrows to depend on!



*



AZTEC CHALLENGE

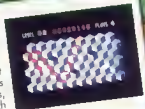
A challenge on an epic scale! Aztec Challenge takes you on a journey to Mexico and the ancient pyramid of Tenochtitlan. The ancient Aztec gods and their devotees have ensured that no ordinary human can learn the secrets of the temple and live to tell the tale. The pyramid is protected by all

manner of treacherous traps and hidden perils - an epic test of your courage and cunning. Aztec Challenge features no less than seven totally different screens - here are just three of them - each of which presents a brand new challenge. We hope your joystick can stand up to it!

*

SLINKY

Slinky, the spring, was having fun hopping about when suddenly he came upon a pile of coloured blocks, so he thought he'd play around on them for a while. Much to his amazement he found that they changed colour when he landed on them. Wow! But unknown to him, the blocks belonged to the Wicked Wizard, who sent his friends along to tease our poor hero. Slinky is a real fun package with ninety-nine levels, amazing reward displays, and action replays. Where else could you meet such charming characters as Dusty the dust cloud, Marge the magnet, Ralph the random raindrop, and Lorenzo the chameleon hopper?



*

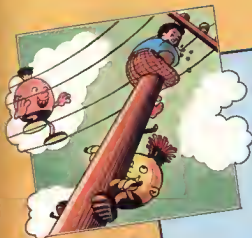
Audiogenic LTD

DISK GAMES £12.95

FOR FREE COLOUR CATALOGUE OF OUR

FROM

Audiogenic!



FRANTIC FREDDIE

Frantic Freddie is fun all the way! Played to an unbelievable soundtrack of brilliantly arranged tunes, Frantic Freddie contains all the ingredients that make a game into a classic! Freddie is a telephone line engineer who has to climb up and down the dreaded Greeblies. The Greeblies take on a different form with every new screen, but one thing's for sure - they may look cute, but they show no mercy! Frantic Freddie also features wacky messages, funny interludes and silly banuses. Frantic Freddie - a game with a sense of humour!



AUDIOGENIC PRODUCTS ARE AVAILABLE IN ALL MAJOR STORES OR BY MAIL ORDER DIRECT FROM US. (MAJOR CREDIT CARDS ACCEPTED)
PRICES INCLUDE V.A.T. AND POSTAGE AND PACKING

PEGASIS

Pegasus takes us back to the mythical age when the battle between Good and Evil was fought by heroes on winged steeds. As the champion of the forces of Good, you must topple the evil Black Warriors from their jet black flying horses by swooping down on them from above, then land and finish them off before they can remount. In order to keep airborne, you must keep your wings flapping with the joystick Fire button, and control direction with the stick. The brilliant programming of Pegasus gives you stunning graphics, bonus creatures, great wing flapping sound effects, an incredible simulation of flying horse aerodynamics, plus - two players can play at the same time!



* THESE FUN-PACKED PROGRAMS ARE ALSO AVAILABLE ON CASSETTE - £8.95

OTHER PROGRAMS, CLIP AND RETURN COUPON

PLEASE SEND ME YOUR FULL COLOUR CATALOGUES
NAME _____
ADDRESS _____

AUDIOGENIC LTD
P.O. BOX 88
READING
BERKS.

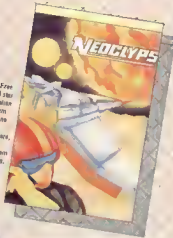
ARCADE ACTION & ADVENTURE WITH... COMMODORE 64



Mobydick

The object of this game is to blow up submarines, destroy the helicopter and catch the falling prize, but do not hit the whale.

£7.95



Neoclyps

You are the GOOD GUY, Free Men Fighter and renowned star pilot. The BAD GUYS, an alien race from distant solar system have invaded NEOCLYPS, one of your colonial planets. Being the good guy that you are, you set off to liberate the planet from the aggression of the Bad Guys. The Bad Guys have parasites of Neoclyps with several today towers which reveal your position to them.

£7.95



Cosmic Split

You are caught in a vicious jungle of giant insects. Cockroaches are attacking you from all sides. Kill them as they creep from the sky, and to top things off there's a vicious spider lurking in the back ground.

£7.95



Metroblitz

The object of this game is to defend your city against an onslaught of metallic aliens.

£7.95



Kystals of Zong

Your object is to overcome various obstacles and overcome customers intent on stopping you as you progress on your quest for the Kystals of Zong. Quick reactions will be necessary if you are to succeed as you will guide you.

£7.95

the finest arcade action and adventure from the U.S.A. Canada and the U.K.



PSS SOFTWARE

FOR INSTANT CREDIT CARD SALES TEL (0203) 667556. SEND CHEQUE OR P.O. TO PSS 452 STONEY STANTON RD COVENTRY CV6 5DG. TRADE ENQUIRIES CONTACT JOHN FLETCHER, COVENTRY (0203) 81346

Letter 5

Pan pipes

We have recently seen the letter from Mrs Carter of Waltham Abbey Essex printed in your April issue. I'm glad to enclose a copy of my reply which explains about what happened.

It would be most helpful if you could inform your readers of what has happened and also to tell them that if they bought a copy of 60 programs for the Commodore 64 in December, January or February they should tear out the title page (it's the first page of the book) and mail it together with their name and address to Elizabeth Kinneil, Pan/PCN Computer Library, Pan Books Ltd, Cavaye Place, London SW10 1PG. We will immediately replace the defective copy with a revised edition.

D.M.R. Kewley, Director, Childree's and Educational Publishing, Pan Books Ltd, Cavaye Place, London SW10 1PG.

The letter for question mentions

that Pan discovered in early January that the book was defective and immediately withdrew it from sale. "Our customers, the bookshops, were all notified of this fact and asked to return existing stock to Pan. We also notified them to advise their customers to return their faulty copies to us through the procedure of tearing out the first page of the book and sending it into our office. We undertook to replace all defective copies notified to us either through the booktrade or through this direct method."

The fault lay with the printer used to print the programs, says Pan. All the programs were checked on a screen that dumped as to printout. "Unfortunately, and we believe uniquely, the printer we used had a defective memory chip which caused it to print out incorrect characters at random. As the programs had all been checked on screen and no-one had ever come across a printer which didn't print out exactly

what the computer instructed, the print-out was not checked character by character. It was only when customers started to have problems with programs that had worked perfectly well for us that we realised that something was at fault ..."

Anything you can do

Help! Does anybody out there know how to find the word or words of a line in the program of a game or get out of the dungeon in *Haros of Karn* written by Interceptor Micros? Please write to the magazine and the letter might be printed. This game is driving me crazy, so please help.

By the way, it's a brilliant mag but it should have an Adventure page as lots of people play and write adventures!

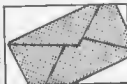
Simply brilliant mag! keep up the good work.

Stephen Oliver, 20 Chacombe Road, Middleton Chertsey, Nr. Banbury, Oxon.

On Softchip

Glad you liked the Softchip-64 can't resist writing on one thing though, it is true about the Basic IN PUT# accepting only lines shorter than 89 characters, not 80 as on Pets. This I suppose is due to the Vic being developed first and then the chip who changed it for the 64 not remembering he had two lines of 40 characters again not four lines of 22. I'm sure this is one of those things Commodore chaps forget as easily as the rest of us!

David Tindale, Whitty Computers Ltd, 9 Chable Hill Road, Whitty, North Yorkshire YO21 1JU



COMMODORE User

Monthly

The independent magazine for Commodore's small computers, incorporating Vic Computing.

Please enter my annual subscription to Commodore User. I enclose a cheque/postal order made payable to VIC COMPUTING LTD for...

- ☐ £12.00 U.K. ... or use your
☐ £18.00 EUROPE Access/Mastercharge
☐ £32.00 Rest of world number:

Now return this form with your cheque/postal order to:

COMMODORE USER SUBSCRIPTIONS
 BKT SUBSCRIPTION SERVICES
 DOWGATE WORKS, DOUGLAS ROAD
 TONBRIDGE, KENT TN9 2TS

Commodore User is published monthly commencing with the October 1983 issue. Unless you specify otherwise, your subscription will commence with the next issue.

NAME:

ADDRESS

POSTCODE

SIGNED:

DATED:

QUALITY USER PORT HARDWARE VIC 20/64

INPUT/OUTPUT EMULATOR

Switches and LED Indicators are fitted for the eight user port lines and two control lines. Fully buffered with user port connector duplicated on rear. Price £59.95 each

INPUT/OUTPUT CONTROLLER

Accepts up to eight independent logic signal inputs or switch contacts in the range 3-30V DC. Drives up to eight independent outputs through darlington stages which can each switch up to a max 50mA at 50V DC. All inputs are optically isolated and all outputs diode protected for inductive (relay) loads. Connectors provided. Price £59.95 each

MANY HOME, HOBBY AND INDUSTRIAL CONTROL APPLICATIONS FULL 'BASIC' DOCUMENTATION SUPPLIED

Price includes VAT Add P&P - UK £1.00 Overseas £3.00

Further User Ports available shortly including A/D and C/A converters. Send cheque or PO with order to:

MICRO-DATUM

Suite 44 Paddock Mount Offices, Dawley, Telford, Shropshire TF4 3PR
Tel: (0952) 501378

Commodore 64 Database DATAFILE

Powerful options include: Print all/selective records, delete, amend, save, load, copy, alphanumeric sort, user defined fields, memory check, total numeric fields, multi field interrelational, global and between limits searches etc. Fully menu driven with comprehensive easy to use instructions. Disk and cassette fully compiled.

Outstanding value:- cassette £7.45, disk £10.25.
Fast delivery by first class mail. Send cheque/PO to:

A & C SOFTWARE

51 Ashtree Road, Tividale, W. Midlands B69 2HD

Y-E-S Vic 20 & 64 COMPUTERS

SALES & SERVICE

SAY YES FOR COMMODORE

HARDWARE, SOFTWARE & PERIPHERALS

YORKSHIRE
ELECTRONICS
SERVICES
LIMITED

Carlton House,
17, Fountain Street,
Morley, West Yorkshire
Tel 0532 522181

Sumlock

MANCHESTER.

Commodore appointed VIC 20 dealer.

Permanent showroom-shop display.

Hardware-Software-Accessories.

Books-Service-Maintenance.

Personal computers with Personal service

198 DEANS GATE, MANCHESTER.

TELEPHONE 061 434 4233.

DELTA FLEX Commodore 64

If you are tired of shooting everything in sight, then why not try our "Brainasers" Puzzle Games?

Games include: Stack-A-Disc, Battleships, Colour-Flip, Codebreaker, Number Cruncher

All on one cassette with menu selection
Exceptional value at £5.00 inc. p.p., mail order only

Send cheque or PO to

DELTA FLEX

6 Magdalen drive,
Woodbridge, Suffolk
IP12 4EF

INFODISK 64 £75.00

- a very powerful Data Base system with variable length records up to 2,400 characters, 9 screen pages and 180 fields. Full report generator and 19 function calculator, links to word processors. No programming skill required!

INFO TAPE 64 £16.95

Stores up to 3000 Data items, report generator and 19 function calculator. Records can be transferred to INFO DISK when you upgrade

Prices include P&P and V A T

Tel: 0949 61318

Beaver Software Systems,

Stathern, Melton Mowbray, Leics LE14 4HJ.

CARTRIDGE CITY COMMODORE 64 CARTRIDGE RENTALS

- ★ Choose from a rapidly growing range
- ★ Descriptive catalogue
- ★ Yearly membership only £5
- ★ Hire rate from £1.50 for 10 days
- ★ First hire FREE
- ★ Big discounts on software and hardware
- ★ Monthly Star Program Offer

Large SAE appreciated for details

CARTRIDGE CITY, Dept. C,

25 GAITSIDE DRIVE, ABERDEEN AB1 7BL

or phone: (0224) 37343

FREELANCE Commodore 64 programmers wanted.

We are rapidly converting our best-selling educational software to run on this incredible machine. If you think you can handle this challenge, write, giving full information about yourself and the machines to which you have access, to:

Chalksoft Limited
37 Willowlea Road
Worcester
WR3 7QP
Telephone (0905) 55192
(24 hr answering)

Members of The Computer Trade Association

Chalksoft

Everyman Computers

YOUR FRIENDLY
COMPUTER SHOP
IN WILTSHIRE

VIC PRINTERS
DISC DRIVES
SOFTWARE -
DUST COVERS
BOOKS, CARTRIDGES

Commodore 64 - THE BEST VALUE ON THE MARKET



14 Edward Street,
Westbury, Wilt BA13 3BD
(0373) 854644



DERBY

CBM64 AND VIC20 DEALERS

We have the largest selection
of hardware, software and books
in the area.

FIRST BYTE COMPUTERS,

10 MAIN CENTRE,
LONDON ROAD, DERBY.
TEL: 0332 365280

Vic-20 software for sale £100 of games on 15 cassettes for \$40 one. Cassettes include Skramble, Space Invaders, Gridrunner, Commodore/Pos/Defest, Music synthesizer. Will consider swapping or swapping. Also 10 copies of Vic Computing \$5 P Simpson, 11 Egmont Street, Milford, Cumbria LA18 4EA.

Commodore Pet 3016 For office/home. Substantial memory. Built-in monitor includes tape recorder, teaching book and software. price £230 one. (was \$700). Contact John Speers, 5 Woodlands Road, Camberley Surrey GU15 3LZ. Phone Camberley 26758.

Horse Code tutor Commodore 64. Variable sending speeds. Text/Random. \$4.99 inc p&p. Cheques/POs Doublesoft 49. Nags Head Lane, Brentwood, Essex.

Junior Maths-CU Commodore 64. Ideal tutor for addition/subtraction/maths. \$5.99 inc p&p. Cheques/POs Doublesoft 49. Nags Head Lane, Brentwood, Essex.

Vic-20 originals: Matrix, Trax, Laserzone, Comic Firebirds, all \$16K. \$3. Arcadia, Bewitched, Racer Phreks, Tamada, Cavern Racer, Rabbit Chase, Blitz, Jackpot, Meter mania, Metalgalactic, Llamas, Vlamen, Asteroids, all \$15K. \$2. Rat Race cartridge. \$4. Phone Welyyn Garden City 26587 to confirm sale. (after 4pm)

Copier! Make back up copies of your favourite CSM 64 games. Also header reader program written in machine code can copy 99% of games available. Instructions are contained in the program available on cassette only. CSM copier \$5. Robert Lewis, 34 Celatim Rd, Gornant Dyfed, Wales.

Vic-20 only 3 months old unwanted present, 9 months maker's warranty. All box packed in original packing inc 6 games cassettes, 5 cassettes. Only \$160 one. Phone 01-561 1668

Swap my 64 software for yours. Choose from over \$300 and lend to James Morrison, 6 With Hill, Eastbourne, East Sussex or phone (0323) 54240. Especially wanted American imports no dais

Vic-20 Software Hire, dozens of titles from 42p per week. Send \$3 cheque/PO for your membership kit to: Vic-20 Software Hire, (Dept CU), 242 Ransom Road, Mapperley, Nottingham or phone 626953 for details

Vic-20 plus disk drive plus printer plus cassette player plus motherboard plus full memory expansion. Forth, Machine Code Monitor, games tapes and cartridge Super Expander, introduction to Basic Parts 1 and 2 books etc. Telephone Witham 519756 for details. Offers \$500 one

Swap! unwanted EasyScript for good database prog. SuperBase 64 or similar. Will throw in Sprite Man and Hungry Horace for good swap. Must be a comprehensive Basic! Phone Whitby 600767 (after 6pm)

Vic-20 users. QMAT will allow you to make back up copies of cassette based games, etc that cannot be copied in any other way. Price is \$4.95 EASYSAVE will let you save machine code programs with a name so that you can load them back up as easily as Basic programs. Price is \$4.95. The Vic-20 RESET BUTTON will enable you to recover from a crash caused by the system lock-up in machine code programming without switching off. Invaluable to M/C programmers. Price is \$3.95. These items and others available from - Minersound Ltd, 8c Frederick Street, Luton, Beds LU2 7GS. Tel (0582) 413583

Vic-20 and Commodore 64 listings. Vic-20 up to 16K max only \$1.00 and sale. Commodore 64 only \$1.20 and sale. Fast return of cassette and listing. Send cassettes to John Walker 14 Leamside, Leam Lane Estate, Gorsehead, Tyne and Wear NE10 8NT

Vic-20 cassette deck 16K Super Expander. Joystick, 5 cartridges, 10 cassette games. Intro to Basic Part 1, four books. All this for \$150. Tel 0294 284844. Kevin Connell, 25 Pollards Gosspops Green, Crawley, Sussex

Memory for Vic-20 Stock. Storeboard at 15% off cheapest known price. Send \$5.40 per 2K chip to Mark Weymouth, 14 Porogon Close, Cheshire, Stoke ST10 1JD

Commodore 64 programmers Experienced machine code programmers required for SW London based educational games software house. Creativity, graphics ability and willingness to work with a team essential. Good salaries. Tel Peter Lever (01) 874 6046

Vic-20 plus cassette recorder, joystick, lightpen and software. 14 cassette games, 8 and 16K RAM expansions. Geography and English educational programs. Introduction to Basic Part One cassettes and book. Cartridges. Andrew Gaskell 182 The Avenue, Leigh, Lancs L20 2 - and Leigh 671104

Fireman with 64 aged 34, many interests, living Northern Scotland, would like to exchange programs. Letters from anyone abroad. Beginner with computers! Box No

Vic-20 4KD Word processor 27 functions. Word writing becomes professional. Must be cheapest on offer. Instructions included. Homework, essays, business. This program is a must. \$9.90 p&p. P/O cheques, J Scott PO Box

Vic-20 3 games on one cassette for unexpanded Vic-20. Othello, Connect Four, Mastermind. Great value at only \$4.95 inc p&p. P. Archer, 151 Albert Road, Chaddesden, Derby

747-Pilot for Vic-20 with Super Expander or NEW 8K+ expansion memory version - state which. High resolution display of aircraft altitude and angle of bank, numerical readout of speed, Mach number, engine thrust, fuel flow, height, vertical speed, course, miles covered and elapsed time. Take off, climb, cruise, descend and land! Hi-res graphics, colour sound and function keys. Cassette \$6.99 from VICTAX, 12 Leitch Close, Molevyn, WR14 2UF, England

Home Accounts. Put your house in order! Probably home account compiling's best use! Comprehensive coverage of bank accounts, credit cards, HP, input/output accuracy check. Records all transactions. Projects available for any period ahead. Available for CBN/64 or Vic-20. \$7.50 or FREE details from R.B. Computer Services, 2 Hazlewood, Winifield Hill, Bingham Devon Tel 080 45-55532

64 Software, Hobbit £10. Gridtrap \$7. Galaxy \$7. If all 3 + Graphic Editor free or \$3 for GEd. A Pompani, 36 Lansdown Rd, Swindon Wilt. Tel 487377. Mon 10 till 6pm

Swap my Vic Avenger cartridge the famous Space Invader game for any Adventure cartridge. Contact Jonathan Finn, 8 Priestwick Drive, Blandfords Liverpool L23 7XB. Tel 051 924 6657

Commodore 64 Games library yearly membership \$5. Two weeks hire at £1.40 which includes post and packing. Send stamped addressed envelope to 175 The Hatfields North Watford Herts

Sales Commodore 64, Disk Drive 1641. EasyScript, games, macro assemblers, 20 disks, books, magazines under guarantee only 4 months old. Cost \$475 will sell for \$370. Phone (0865) 54084

Vic-20 + Cassette deck + super expander + 16K RAM pack + Programmers Reference Guide + Joystick + \$160 of the latest software + lots of mags all in good condition for \$170 one. Tel Mansfield 792911

Stay Friday to Sunday at nine of Worcestershire's finest. Hotels and learn 'Basic' on Commodore 64s. All rooms have bath, colour TV etc. 14 hours of instruction from a qualified lecturer. Maximum of 20 people on each course. 10 computers. Cost \$65.00 fully inclusive. Write for brochure to Gainsborough House Hotel, Bewdley Hill, Kidderminster. Tel 0562 754041

USA User Group desires to exchange quality Commodore 64 software. Send disk(s) of best PUBLIC DOMAIN software to Class of 64, 6219 13th Avenue South, Gulfport Florida, USA 33707. Thanks

COPYMATE 64, A back-up utility for the Commodore 64 will make personal security copies of most cassette-based software. Supplied on a quality cassette with full instructions. Send \$4.75 to Norton Software, 15 Barnbury Close, Donesholme, Corby, Northants NN16 9FA

DON'T GET LEFT BEHIND!

Use the order coupon below to make sure you get your monthly copy

To my newsagent:

Please send/reserve me a copy of Commodore User every month until further notice.

Name:

Address:

CLASSIFIED ADE
Commodore User
The Metropolitan
Enfield Road
London N1 5AZ

Tonight you could be giving a SOLO PERFORMANCE

DANCING FEATS.

Are you the next Rod Stewart, Stevie Wonder, Paul McCartney or Louis Armstrong? Find out with DANCING FEATS the great new computer musical composing and performing game from Artici!

Blues! Jazz! Rock! Boogie! Experiment with beat, style, tempo and endings to produce your very own kind of music! See as you play! Notes and chords selected are displayed on the screen as you perform to aid your composing skill! Give it a try tonight at home and who knows, you might end up at the Albert Hall!

Commodore 64 £6.95

Now available for Commodore 64, Planet of Death, Inca Curse, Ship of Doom, Espionage Island and Mothership, all at £6.95.

ARTIC COMPUTING LTD

Main Street, Brandesburton, Driffield YO25 8RL

Cheques and PO's payable to Artic Computing Ltd
Dealer enquiries welcome
Access and Barclaycard welcome

WARNING: These programs are sold according to ARTIC COMPUTING LTD's terms of trade and conditions of sale. Copies of which are available on request.

Send S.A.E. (9in. x 6in.) for FREE catalogue of our wide range of programs.



To: Artic Computing Ltd, Main Street, Brandesburton, Driffield YO25 8RL

Please supply

* Cheque for total amount enclosed £

Name

Address

* Access/Barclaycard No

* Please delete or complete as applicable

A new age has dawned
with the

STACK LIGHTPEN

It's a new, easier way to create software and it's fun too! The Stack Light Pen means freedom from the old labours of the keyboard and a new software style for the future.

Using the Light Pen means you can create programs, including games, with that extra dimension - control, at the touch of the pen. With your Light Pen you can remove words or images from the screen or put them back onto it, or simply move them about the screen. You can even trigger off a series of actions on screen, stopping them at will - with the touch of the Light Pen!

Already Available For **BBC** **ATARI** **MSX20** **COMBOSIDE 64**

And it's so easy to use - simply hold it against the screen, touch the contacts and away you go!

LIGHTPEN SOFTWARE

We've already created software for you to use with your Stack Light Pen...

draughts, GO, LIFE, CROSSWORD TWISTER, SIMON OTHELLO SEEK & DESTROY, SHUFFLER, LOST IN THE LABYRINTH and there's more on the way!

STACK LIGHT PENS and SOFTWARE are available from your LOCAL DEALER or direct from:

STACK COMPUTER SERVICES LTD. 280-286 Derby Road, Bootle, Merseyside L20 8LN
(24 HRS) Telephone 051-933 5511 Telex 827028 (Stack G).

Please supply LIGHTPENS for the

☐ BBC ☐ Atari ☐ VIC-20 ☐ Commodore 64 ☐

and the following Software titles

at £25.00 each £

at £5.00 each £

Add VAT at 15% £

TOTAL £

I enclose a cheque PO for £

Please charge £ to my credit card (specify card)

Card No Name

Address



Access
Barclaycard Visa
American Express
Debit